

# DRAGON



# USER

March 1987

The independent Dragon magazine

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## Editorial

THERE has been a certain amount of activity on the newsletter front recently. Leaping through some of the more serious titles, such as Dragon Update and 68KMicrocosm, amounts a wealth of knowledge. But it is often in a half page here and a whole page there, nuggets of wisdom gathered quickly before some other matter intervenes. And it's not hard to see why: getting even a simple idea ready for publication is time consuming work, and most Dragon writers are part-timers, fitting their contributions in when they can.

All the same, there is a temptation to address a small circle of user groups knowing that the suggests will be accepted as they are, instead of taking the extra time and pain to beat them into shape for professional publication.

Dragon User calls on Dragon users with expertise: there is more interest than ever in programming and applications. Next time you have an idea, ask yourself if you can put it across to several thousand readers, and if you like the look of that, drop us a line.

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(All departments)  
037-4343

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### How to submit articles

The quality of the material we can publish in Dragon User each month will, to a very great extent, depend on the quality of the submissions that you can make with your Dragon. The Dragon computer will be hooked on to the market with a powerful version of Basic, but with very poor documentation.

Articles which are submitted to Dragon User for publication should not be more than 6000 words long. All submissions should be typed. Please leave wide margins and a double space between each line (Programs should, wherever possible, be computer printed on plain white paper and be accompanied by a tape of the program).

We cannot guarantee to return every submit, but articles or programs, or please keep a copy, if you wish to have your program or material returned include a stamped addressed envelope.

# Letters

## Thanks Mum

I MUST say I was worried when DU sent subscription only! I deemed the first step in scrapping the magazine altogether. But now four issues in it becomes clear that DU has been revitalised by the commitment shown by Dragon users. The message is clear to Dragon supporters — WE ARE STILL HERE AND WE WILL STILL SUPPORT YOU! So keep up the nice game releases and user shows, YOU NEED US — WE NEED YOU! Many thanks to all at DU for your continued support.

David Allen  
28 Lakeside Close  
Gosport  
Hants.

## Hard bargain

THANK you from a DU reader of some three years standing. Our magazine is interesting, informative and motivating, a pity it isn't a weekly!

In recent issues there have been pleas from fellow-readers for a technology service article a contribution to the declared aims of DU I would like to offer such a service.

For the cost of materials I would be willing to supply listings, Prose 4 screen clones etc. on A3 or A4 paper to any reader in need. I can be contacted at any time on the above telephone number.

Stan Dolg  
3 Fernhill Road  
Akeley  
Aix 472 57Y  
01870 303234

## SOS-9

I CAN shed some light on Robert Hammond's plea in DU June 1986. OS9 is a dual

# EXTRA PUFF!

Now that the Dragon User People's Chart is no longer with us, we hope that the Letters Page will become the forum for games players as well as news, views and more tedious topics.

Because of this, and to give everyone a chance, we will be shuffling out a game or two to the most interesting letters we receive each month.

Send us your hi-scores and your top five too, and we'll keep a corner where keen game players can air their views and their achievements.

Many thanks to Microdeal, who have again agreed to supply prize programmes for our star letters, as well as putting up the prizes for this month's Golden User puzzle on page 30.

## Grow up Dragons

EXTRA PUFF

It's about time the Dragon grew up! Surely an internal enhancement could be produced to give the Dragon eight colours in its highest resolution, or even a higher resolution than at present for business programs and three channel sound, with a white noise channel for between the OS and the OS users. Also, as an additional extra, an 80 x 24 text screen. This enhancement would have to be compatible with the Dragon 30 and 50 machines. This would make them more attractive than other machines in its price range, and would boost the fit into the Home/Business market. These computers then would be very popular, because the OS9 is the most advanced 8-bit processor available, and is used extensively in the business and university sectors. This would attract the best programmers and give games a next grade quality, as well as giving business programs a more functional quality.

I would be very interested to get some feedback on this subject, not only from Dragon users, but from manufacturers. Maybe someone interested could be shown, some interesting company may actually produce such an add on at a reasonable price. I would like to see other readers' views on this subject.

Ray Saunders  
47 Moorhill Road  
Mansfield  
Nottingham  
NG21 6RS

PS Could you please tell me where I could get a cheap 64 in exchange for a 32? Will Sandy OS-9 work on the Dragon?

Buddy OS-9 will not work on the Dragon without conversion, which is beyond the scope of this letters page. Dragon OS-9 is now more easily available (see DU February 1987). Dragon 64s are generally more valuable than 32s, but there may be someone reading this who has a cheap working Dragon 64 he wants to part with.

operating system which replaced the built in DOS/Beam. It has several advantages, among which is multi-tasking, ie you can visit, print, whatever, and still be able to use the rest of the machine's resources to do something else.

Now for my question. Where can I buy/convert/ask for even purchase OS9 for the Dragon. I have OS9 for the Radio Shack CoCo and do like it, but how can I get it for the Dragon?

I have been checking all of the ads in DU for the past few months, and some of the advertisers mention OS9 utilities etc., but none of them say anything about the system itself.

I also have two RS CoCos (No. 1 started as a 4k machine, and has since been expanded to 64k and the extended Basic chip from RS; No. 2 is a CoCo II, also extended), a multipack interface, RS DOS installed in a Packard Super Computer. I use the Dragon drives, have added an 80 track double-sided drive, with 180 tracks/file available, online storage can approach the smaller/handled systems.

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Thanks for any info.

Charles A. Davis  
Route 1  
Box 538  
Lutherin  
Oregon 97024

## Going down hill

Long before your time at 50kbs, in January 1985, in the Dragon Open File a program was published called SA Run by Michael Dizon of North Yorkshire.

Can you perhaps supply me with an original listing of a correction and the address of the author?

Bury Potter  
The Green  
48 New Road  
Claxton  
Swindon  
SN11 6LU

## Draught stopped

In the January issue of Dragon User you mention a problem with the Draughts program in Enter the Dragon. I have examined the listing and the fault seems to be in line 19125. Instead of ... 8, 125, 155, 244 ... it should read ... 8, 125, 140, 55 ...

Darryl Gove  
754 The Avenue  
Santbury On Thames  
Middlesex  
TW20 9JZ

## Bought out

I refer to Keith Gardner's letter (DU, January 1987) and the editor's note asking for comments about Cumana DOS. I bought a Cumana system a few months ago, and swiftly discovered the serious bug that Keith refers to. In brief, data files are frequently not updated properly or at all, and in some applications the complete disc can be corrupted. These faults have been properly documented by Mike Riey of Grosvenor Software, and I suggest any other unfortunate experiencing problems with Cumana DOS contacts him.

Unable to obtain any answers from Cumana, I bought Grosvenor's Super-DOS, which I find totally error-free. In addition, Mike was kind enough to provide me with a two-byte patch for Sandstrom's Electronic Author. As for a non-standard D: directory call.

At last I have a fault-free system, no thanks to Cumana, maybe it is no coincidence that they are no longer producing Dragon controllers. Although I do not have any first-hand experience of it, the controller produced by PVP Communications uses the Super-DOS ROM and should therefore be a good solution.

John Blatch  
3 Bournehill Road  
Addlestone  
Weybridge  
Surrey TW20 2JZ

## Where's the DOS

First I would like to thank those programmers who contribute so many varied programs to DU (Pam O'Smy, Brian Coledge, Peter Whiteaker, Jason (Dobson) etc.). Without these programming programs for us, some people, including me, would not get their Dragons out!

Unfortunately, we are not all blessed with this programming ability, so while they think and invent, others just enter their hand work from listings. A big thank you one and all!

Now to other matters.

Can you tell me, if I was to buy a disc drive, would the DOS be included in the package, or would I be left to switch-on-and-go. I am not quite a few requests for printed listings. I have a Brother 81P 32 printer and can print listings but not graphic material, and would like to set up such a service. Can you give me a few pointers?

One other thing I would like to ask could it be possible, with collaboration among programmers, to write a program along the lines of Star Wars with 3-D graphics, in wire frames or coloured solids, with a view out of the cockpit window in and out of the obstacles. It would make a great game for inclusion in a Christmas DU. Or could somebody tell me if I am asking too much from a Dragon 32 disk.

Incidentally well done Dragon 32K, you're keeping the Dragon alive.

S. R. Clayton  
135 London Road  
St. Leonards-on-Sea  
East Sussex  
TN37 5AZ

The whereabouts of the DOS depends entirely on the printer. Some have a built in DOS, others are driven from a DOS on disc. As far as the Dragon is concerned, you are normally looking at either a computer-based ROM DOS. Please if you can give good advice on such things. Instead of buying from a general computer dealer a printer that you have not had a chance to try out with your

machine — this tends to be a problem, as most dealers simply do not hold Dragon hardware.

## Sprint wanted

Could you please ask the other readers of Dragon User if they have spare sets of instructions (original or photocopied) for Sprint Basic Compiler by Oasis Software, since I have lost mine. I would be willing to pay any expenses incurred. I have tried telephoning Oasis, but the line is dead, and I have been told they no longer exist.

Also, I am looking for some back issues of Dragon User: if anyone has May '83, June '83 or September '83 issues, and would like to sell them, then they can contact me at the address below.

Keith Hunt  
21, Darnleyham Close  
West Bromwich  
West Midlands  
B70 6AU

## Stylo solution

I notice that there have been several appearances in Brian George's 'Agony Column' of Stylograph and the dreaded double line feed. Brian's advice is to pop into a file and then print using Knobs. It does not appear to work, since the act of popping out still produces another line feed!

Apart from this is Stylo itself, which anyone seems to have successfully hacked, a convenient answer lies in the mainstage program. Simple save the font in the normal way and then use mem (M) to edit the modified mem program as follows:

Using Debug or a similar program, at offset 19125 replace the existing value of 55A by 550, you will then need to enter the hex to correct the cyclic redundancy check, and use the ATTA command to give the file execute permission. That's all, but if anyone cannot manage this they can send me

their copy of mem and I will correct it for them if they include return postage.

Also Stylograph itself can be changed to 80 columns for use with the Dragonplus board by changing offset 3963 to 3A6 and verifying as before.

I can match of the above advice to the OS-8 User Group, whose address can be found in my article OS-8 Files, which is published in this issue.

D. W. Ashby  
7 Heath Road  
Glossop  
Derbyshire  
G12 9JY

## Just one line...

I have had a few letters from people who have found the graphic data corrupted in Counties Out of many means ago. After a careful search, I discovered that line 780 was missing. This must have been lost during printing.

The line is:  
DRAW IBM 80070004H0  
HUB10HUB10HUB10HUB10  
DCLHUB10HUB10HUB10D0D4  
SHUB10HUB10HUB10HUB10  
DPRHPD0D0D0D0D0D0D0D0  
HUB10HUB10D0D0D0HUB10  
3FGD0D0D0D0D0D0D0D0D0  
P0D0D0D0D0D0D0D0D0D0  
H0D0D0D0D0D0D0D0D0D0  
D0D0D0D0D0D0D0D0D0D0  
D0D0D0D0D0D0D0D0D0D0  
D0D0D0D0D0D0D0D0D0D0  
D0D0D0D0D0D0D0D0D0D0

Again, in my letter in November's Dragon User the address line should be 955, not 955.5. Suggest if the program seed not wavy!

Justin Hurrell  
Carl Ruff  
25, Harwood Close  
Clough Mauder  
Hiron  
Staffs  
ST16 6PC

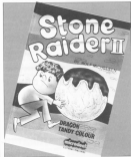
Well, you can blame most things on 'printing', but that line wasn't on a job as far as we can tell, so unless the printer bubbled it out, we don't quite see ...

# News desk

## Fewer Microdeals

MICRODEAL, still the biggest dealer in Dragon software, are planning to prune their list of Dragon games to combat rising duplication costs.

them for an unacceptably long time before we can duplicate a batch economically. Our list will be smaller, but we are still releasing new titles, such as



This will still leave around forty of Microdeal's most popular games available directly from the company, while as yet unstocked titles are being made elsewhere to make older stock available from another source.

Says John Sykes 'We are finding that demand for the older games, say older than two years, comes in ones and twos, so that we will either have to turn orders down or hold

Stone Raider II, which is out now, and Air Mail, coming shortly, and we will be going to the 8008 Show in March.'

'Someone has shown an interest in taking over our older stock, but nothing has been concluded yet.' Another Microdeal success is Dragonworld, which has proved the most popular Dragon game for some months.

## Bernd Knechtel steps forward

I have read the review of D&T in the December issue of Dragon User but I do not want to discuss getting two dragons. I want to make a step forward!

But first let me correct two mistakes.

a) The price was £7 (including p&p) to quote the old price list. Please add £2 for p&p except when entering only D&T.)

b) The sentence in the last chapter of the instructions about booting problems: I must have written it badly. What I meant was that if you had worked with D&T for some time and then spilled for example your cup of coffee on to the disc, in that case you should send for a replacement disc. I guess without saying, I think that if you get a damaged disc it will be replaced without any charge.

Now the step forward!

Because D&T has not been very successful, I have decided that from now on:

a) Any Dragon group or club can get for £3 the source and two master discs of D&T (1.5 and 1.6) to produce tapes for members.

b) For £5 anyone can get four discs, being two D&T discs and two discs with all the D&T source code (1.5 and 1.6) in Diskream format. This is an interesting offer for a machine code programmer.

c) The disc versions of Legend-Reborn and Egg-Checker and Core-Soft are supplied with all the source code files in Diskream, only for disc drives, but cassette owners can have a printout of the source code.

d) The programs in (c) are all £5, which is a reduction of up to 50%.

e) So, everyone who bought

one of the programs mentioned in (a) and paid the full price can have one of the others free of charge. I have their names on record, and they should write and say which one they want.

f) Postage is a flat rate of £2.

g) I have two copies (about 160 sheets of paper) of the Dragon-DOS source code listing (with labels and comments) and am willing to give them away free to the first two groups which buy the kit mentioned in (a).

Sincerely yours  
Bernd Knechtel  
Arnold-Weinlein-Str.9  
5630 Remscheid 11  
West Germany

We reproduce this letter from Bernd Knechtel with many apologies for any embarrassment caused by the misunderstanding over his returns policy, and hope interested parties will take advantage of his special offers.

## Sourcemaker update

THE initial release of Sourcemaker (User Guide dated 11 September 1988) was superseded by a new version dated 1 December 1988. The new version corrects errors in the original and includes an optional END ADDRESS for disassembly (the only 'feature' mentioned in Dragon User's review in the November

edition). Purchasers of the September version who have not yet received a replacement copy should return the original Sourcemaker cassette with their name and address to: Panormos, Ltd., 21 Wycombe Lane, Woodham Green, High Wycombe, Bucks HP10 0HD for their updated version.

## 6809 in March

JENNY Pope, last recently well known as the public liaison for Microdeal, is now working independently, and she will be promoting the first independent 6809 Show at the Royal Horticultural Halls in Westminster, London on Saturday 28th March. Details should be appearing in a special announcement elsewhere in this issue. Information is also being sent out to all Microdeal's mailing list, as before.

## Scott of DOS Plus

Readers have been calling to find out where and how they can purchase DragonDOS Plus 2.3, which was reviewed in the February edition of Dragon User.

Copies (now up to volume 2.7) can be obtained from Phil Scott at 4 Badgerwood Drive, Frinley, Camberley, Surrey GU24 0UF, and the RDM credit £16, payable to P. G. Scott.

## New show at Ossett

JOHN and Helen Penn of John Penn Discount Software are holding the new Dragon Computer Show at Ossett Town Hall, W. Yorkshire on Saturday 18th April. The show will run from 10am to 3pm, and the entrance fee will be £1 for adults and 50p for children.

The show will include Dragon retailers, and demonstrations by users. Says Helen

"We would like to hear from anyone who has an interesting idea or application for the Dragon and would like to do a demonstration on the day." Contact JPD Software on London (04203) 6976. Don't worry if you can't get through first time — there are a limited number of lines into that part of darkest Hampshire. Keep trying.

## Three quick ones

QUICKGLAM Software have announced three new games, at the moment known only as Super Kid, Metal on Metal, and Six-Axis-Saviour.

We have the most detail on Super Kid, a new Wayne

Smithson game, with four-channel music by Chris Jolly and colour graphics by Chris Warren.

The projected release date is April 1987, and we have no price details yet (jw)

## Longer life from Broomsoft

MICHAEL, Edwards of Broomsoft has announced a new adventure, The Invisible Dragon. The aim of the game, says Michael, is to become immortal. He has solved the problems which has baffled mankind since Future Shock (back off) was first discovered? Proferring the sum of £4.00 to Broomsoft at 30 Broomhill, Welwyn Garden City, Herts. HLT 19F will reveal all that he knows.

Information about Broomsoft's duplicated broadcast Dragon magazine can also be obtained from the above address for the price of a stamp. Affordable — games reviews, charts, news, pages — in 12 issues a year are promised. Our sample has six A4 sheets

with front and back cover, stapled at one corner, with sturdy but readable print.

## NDUG

The latest edition of Dragon Update has just rolled up, and chairman Paul Grade is swamped with work and wants more help with answering the mail — sounds like he has my problem! P. Beed give Dragon User a thoughtful write-up. He's wise to the value of keeping old magazines in a specialised subject, and understands our problems in getting new information and assistance now that there are fewer users. There's a couple of short reviews, lots of general news and information, and some notes on video games from Paul.

Contact the National Dragon Users Group, c/o Paul Grade, 6 Havering Road, Waltham, Sussex for more information.

### THE LAST POWER SUPPLY YOU'LL EVER NEED — GUARANTEED!

All SuperSmooth Dragon POWER SUPPLY: £16.00 complete. 2-year guarantee plus life-time service warranty. Direct from Britain's leading manufacturer of replacement power supplies.

Transform your Dragon 320c kit with a fast action, silky-smooth replacement KEYBOARD (Single Strip) £7.99

JOYSTICKS: General purpose, precision potentiometer Pro-Sticks £8.95 pair, £3.50 each. Joytite Quattro arcade-type, with Dragoniser interface £16.00 each. Chesskit 128 Arcade arcade-type, with Dragoniser £14.95 each.

BOOKS: Including Inside The Dragon (T.H.E.) (new) £7.95. Plus Dragon User, Dragon Monthly and printer's Tech book numbers.

LEADS: Aerial £2.50 cassette £3.95, printer £11.95.

PRINTERS: from £2995 (Epson P-40 thermal?) to £29495 for the fastest immaculate, full-feature Perfection (LX-PR1000) — the one WE use! Why pay more for less?

All prices include UK post and packing.

This is just a small sample of our stock of over 150 Dragon lines. We probably have the world's largest range of GEMSTAR Dragon accessories — dust covers, carrying cases, T-shirts, sweat shirts, light pens, stickers, etc. etc. etc. Whatever you need, please phone — if it's not listed, we should have one somewhere!

**PEAKSOFT DRAGON SUPPLY CENTRE, 48 QUEEN STREET, BALDERTON, NIBBARK, NOTS, NG213HD.**

Access/Via orders or inquiries! Phone 0436 706230.

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# 6809 Show Reports

## SUPPORT MUCH NEEDED

SATURDAY 23 November 1988 was the day of the fourth 6809 Show. I arrived at the Royal Horticultural Halls at about 10:20am, and was pleased and surprised to see a large queue accumulating outside the halls. So the Dragon is still alive and kicking!

When I finally found my way inside, I was disappointed to find the hall rather bare compared with the last show I went to back in 1984. Some of the stalls looked like old school dinner tables, and at the least rather *atrocious*.

All the major names in the Dragon software and hardware industry were at the show, except Innotek, who seems to be pulling out of the Dragon scene after their hugely successful five star games, MacTrack, Great Steady Go and Moon Cresta. It is a great shame that the Dragon is losing a great software house in these troubled times.

The drabness and emptiness of the hall did not take away my excitement, and every hour or so I'd mutter "explain that" at the point the writer caused a terrible suspense by breaking off to insert a new piece of paper in his typewriter. What was he going to do next? Show? Buy an ice lolly? Run down the assembled crowd with a copy of Fire Force...? I walked round the stalls trying to find as many outstanding bargains and play as many games as possible. (Ah! The usual — dit!) This hyperactive state lasted about ten minutes, after which time I sat down and started to have a really thorough look at what was on offer.

Naturally I started on Microdeal, the giant of the Dragon software industry. They had six stalls out of the twenty at the show, proving how heavily the Dragon software industry still depends on Microdeal's support. The main stand which sold the latest releases (Angledrive and Guldner and the Golden Chalice etc.) was a hub of the activity throughout my stay, showing that Microdeal is as popular as ever. I was disappointed to see only three games were set up to play on their stand, compared with the eight available at the second 6809 Show. These three were Dig II (a slightly more sophisticated version of Mr Dig, Angledrive) and Aitah (a backtick with monsters, but at least I didn't have to wait ages to play them). The other Microdeal stand, which selling their older and less popular games at bargain prices, together with Wintersoft and Salamander games,

Most people at the show must have left thinking Dave Hutchins of Quickbeam was dead, as the Affair theme tune was constantly playing out at full blast — or was he trying to attract attention? His usual stand was yesterday packed and it was hard to get within half a mile of the front, but when I did get there I saw the impressive Fire Force 2 and the perfect present for any games mad Dragon owner, five of Quickbeam's best selling games all wrapped up ready to be put under the Christmas tree.

Probably the most versatile company on show was Packsoft. A few years ago they were software based, producing great games like Champions, but now they have hundreds of Dragon accessories ranging from joysticks for the games freak to disc drives and printers for the serious user. All of these were displayed at the show and many people benefited from their bargain prices.

If I thought getting to the front of Quickbeam's stand was hard, finding the front of John Peers's was like climbing Mount Everest. He was offering over one hundred programs at amazingly low prices, and I for one lightened my wallet at his stand.

Grossner Software exhibited the full family of DREAM products — Ten editor, COLOURMAIL, SUPERDOS and the AX25

Rocket Radio system by GEMAR for radio amateurs, and were always willing to answer any questions.

Computape seemed to be having a re-impregnation with its archival John Peers — this ensured the bargain Hunters rich pickings, and I would be surprised if anyone left the show without buying a game from one of these two companies!

There were two user groups represented at the show, the OS-9 User Group and the National Dragon User Group, offering special software deals, representatives at cost, and a magazine at a price!

From the point of view of the companies exhibiting, it was a fairly successful day as, though attendances were down from the previous year, the drop was not as bad as had been feared and most people who came were interested in buying, not just window shopping and playing the games as in some years.

Even though the show lacked the professional touch of previous years, I had a very enjoyable day and look forward to many more such shows, but I fear unless Dragon users offer more support by coming to these shows, the lifeblood which the show provides will be lost. So support your computer, and all of you decide your duty and attend! I repeat: it's your duty, not mine, don't blame me if the Dragon dies.

Tom Millard

## LIVELY AND LOTS OF BARGAINS

As Christmas drew near, so the pennies were drawn out of Dragon users' pockets in the midst of the 6809 Show. November 22 was the date and the Royal Horticultural Halls once again the venue. Evermore new products were displayed at the November show and the range of Dragon software increased once again.

Quickbeam, now filled with confidence, boldly displayed Fire Force on their stand directly opposite the entrance. Just as proudly, Innotek Smithson showed off his recently completed Fandis virtual all funded screens, and the product of an independent software house, John Peers spread the usual mountain of bargains across his stand, and Innotek displayed to be flagging two year old editions of Cuthbert's Chronicle across the way. Software was also abundant on Microdeal's other stand, but few new releases appeared, and demonstrations were non-

existent, unlike previous shows. Unlike the subject of software, there was plenty available for Tangy users, for virtually all the current Dragon family conversions were neatly laid out on a budget software stand. Apart from Salamander's usual range, there was nothing more to be found in the way of entertainment software.

The full power of the Dragon was unleashed in other areas, and the excellent Software game demo staff their business files. A very impressive and useful range of other programs has now been built up by the company. I had to push my way to the Computape stand, as they were cutting down on their stock of licensed Dragon OS, working, getting rid of them at 25c a time. Although Computape were showing an IBM PC compatible Dragon board for the first time and the Dragonplus expansion, by far their best seller was the old 32.

Lively was the Grossner stand also, with a fair trade being done in Dragon disc systems. The bustle of the show continued for several hours and this time it was certainly no quieter than on previous occasions, and at all in many bargains were to be found for Santa's sleigh.

Andy Gray

## RELAXED AND FRIENDLY

The day arrived and we all got up early (for a Saturday) and piled into the car. We were off to the Show of the Year, the 6808 Show at the Royal Horticultural Halls in London. The three boys had been looking forward to it for months, I, having been told the others, was not sure I wanted to go at all. My wife refused to go. She hates computers, and blames them for everything (Quite right — Ed.). So there we were, hurrying at breakfast speed up the motorway, trying desperately to get to the show in time for the doors opening at 10:00am. I relaxed and slowed my way through the morning traffic to arrive at 10:15 and time LAZARUS! I selected my Dragon User 'Doors open 10:30' sign!

Having bought our tickets in advance we were in the hall in a trice. The boys and I parted company, as they wanted to see what games were on special offer, and I wanted to check out operating systems and modems, etc. First stop was at the Grosvenor Software to have a SuperDOS flexdisk by Cumana Cambridge, a worthwhile investment, if only to obtain updated information on the screen instead of just repeating what was already in the buffer. This item seemed to be generating a large degree of interest (fairly surprising, considering the standard of DragonDOS).

Next came the Computerised stand, with not a lot on show but plenty of information available. Canadian Dragons were on sale, but only useful at those with NTSC (the American TV standard) monitors. It was here that I learned that Cumana intended to stop production of DOS cartridges for the Dragon. This is bad news for some, but I am sure PVP Communications and Grosvenor Software will not be losing a great deal of sleep over it since they will be sole suppliers. I got the feeling that Computerise believe the market for the Dragon is slowly dying, and while they will do nothing to accelerate the process, they are turning their energies in other directions, particularly IBM clones, and hoping eventually to take loyal Dragon users with them. If my finances were not that flat, I could feel more comfortable knowing that Computerise were involved.

Wayne Smithson showed that he was on the ball when he told the very slight concession necessary to let his flexdisks, Author an SuperDOS. I was a little surprised to find no demonstration of his new game, Frankie anywhere. Baby were selling their complete range of games at even lower prices. I shall be sorry to see them pull out of Dragon software, but they have their thing to make and the games market in general is shrinking. John Penn was displaying a vast range of cheap software, and said that he can get the OS-9 operating system via Hans Christian Anderson in Denmark. I thought he was a fairy tale, but John assures me that he really does exist, and is a reliable source of supply.

Marie Software were demonstrating Basic 42, and on the monitor it looked so good that I bought a copy. The system works well but has a slight problem with converting all inputs into upper case. However, there is a simple way round this problem, which Robinson will tell you if you drop him a line.

No visit to the show could be complete without a visit to the Microdeal stand. They are the organisers of the show, and usually the stand you have to fight to get to. Well, it was busy as usual, but access was easy and service was quick. Some were the boards passing over the bargain games, gone were the display units belling out their music and white noise, making it almost necessary to have ear defenders. The result was far more pleasant, and made it possible to thoroughly peruse the many bargains available. It was here that I was reunited with my sons. Microdeal had thoughtfully provided back numbers of the Cushman Chronicle, one of which was a list of games that would be equally well on the Dragon and Tandy machines. The boys were using this list to play one off against the other. If the Tandy game was cheaper they got that one, and vice versa.

The only people actually demonstrating their games were Quickbeam. Their stand was much like the last year's, Fire Force having replaced Shoots Master on the screen. For

space and accessories, Peaskoff's stall was the place to be. They had keyboards, power supplies, cables and joysticks, etc. On the software front they were selling amongst others Adventure Minter: an operating environment that makes it easier to plan out your adventures. It comes in a plain brown envelope and contained everything, except the original ideas, that you need to write your own adventures.

I enjoyed the show immensely as did the three lads. The relaxed atmosphere was fantastic and everyone was so friendly. However, I would have liked to see another six letter exhibition — I wonder without the crowds, but that might not have been my feeling if I were the organiser. As the show was only on for one day, I expected it to be bursting at the seams, but it was not. I hope this is not the last 6808 show. We need something to bring Dragon enthusiasts and suppliers together.

David on a brighter note, at the last show I was looking and asking for a tape to disc converter and a disc based forth compiler. This year I was able to buy Duplomatic from Quickbeam and the Fort 05 from the National Dragon User Group. So if you have a particular requirement, ask for it, if enough people ask for something, someone will make one. This year, by the way, I wanted a modem.

Ken G. Smith



## BETTER BUT A BIT BARE

WHEN I arrived there were long queues at the doors, stretching around the building, and I waited 15 minutes to buy my ticket. Once inside the hall, I looked a lot better there were only about twenty stands, but the hall was filled with people. Most were showing off their new games, Degussor and Wizard's Quest, which were selling like hot cakes. They also had Air Def and Stone Raider if which were coming soon. Stone Raider is a Boulder Dash type game, and Air Def is a follow up to Wizard's Quest, and both looked very good. Other games selling well were Fire Force from Quickbeam and most of Baby's range. Hardware-wise, Computerise were selling their Race products at very low prices (the R3232 port for only £25) plus all their usual stuff. Grosvenor's

SuperDOS was being snapped up and they were also showing BITTY in the hall, with an enormous aerial going up to the roof.

I heard some gossip that Microdeal might be putting some Dragon stuff on their Bulletin Board, and that they only need another 500 people in their Day 1 Club to keep up Dragon software support. Also, Harry Whitehouse of Peaskoff told me that he might be leaving Prestel after their dispute about payment.

Other things at the show were a program to turn your little Dragon into a proper music synthesiser (which sounded good), an auto dialler for the phone by the National Dragon User's Group (for people with very long fingers) and loads of discount software. After 11:30 the show closes down, and I had to leave to catch a train, so I after 12 a bomb went off, I'm sorry I haven't reported it (Was as far as I know — Ed.). I enjoyed the show, it was better than the last few years, but there wasn't quite enough there to last all day.

Jim Nagler

# Saving Grace

Rod Busheff looks at the Dragon under siege, and finds that it is not alone with its problems

TO THE dismay of many, but the surprise of few, another link was added to the chain of adversity which binds the Dragon when Dragon User removed itself from the open market and went subscription only. How many users looked upon this as the first step down the road from which there is no return? Like it or not, there is an element of surrender in being forced into such a position.

The very fact that Dragons are still remaining says a lot for the resilience of the species. The machine has stayed active through buy-outs and bankruptcies, through unwise software supply, and through general criticism and public dismissal following the closure of Dragon Data.

Dragon owners are used to the vicissitudes of the unfashionable end of the home computer market. Many models have sunk without trace, yet the Dragon has continued to retain an active user base and software. The efforts of Dragon User magazine have greatly contributed to the continuing publication of facilities for the Dragon. Its enthusiastic, sometimes desperate, joys to keep interest alive have largely been responsible for maintaining user interest and preventing it from drifting into an unsupported market backwater.

The parameters of the home computer market have changed considerably since the first launch of the Dragon. The computer boom always had the 'transitory' written through it, although (it had the word 'money' used to it in much larger letters — for manufacturers) seemed analogous to it. The meteoric growth in sales matched the confident expectations of the market analysts. The individual user market was buoyant to such a degree that it was seen as the modern means to print money.

One small point was overlooked: individual users are qualitatively different creatures from the business or professional user. This means that there will always be a limit to the number of sales and that the market has definite boundaries. The number can be large, but it fails to take account of the high fall-off in home sales. Business users keep computers in near permanent operation, and of necessity update software or hardware more often. The home user wants a long-term, reliable, flexible machine which won't need expensive updates. Unfortunately, most purchasers do not know what their choice was capable of, nor do they envisage the future trend in the home computer industry. They were not alone: most of the industry didn't, either.

But how many machines ended their days in the loft as their owners despairing of mastering the intricacies of programming, got bored with the games, or generally lost interest? Of these who persevered, how many were sufficiently enamoured of the new technology to upgrade on a regular

basis? Come to that, how many manufacturers offered significant upgrades of their products?

Almost all the major computer manufacturers experienced problems with excess stocks, slow sales and abortive product launches. Many producers have effectively stood still over the last few years.

Sindair ventured into the waters of the ZX and MSX, diversified even further with the CG and FGL, found time to start up the old Spectrum and then brought out its big brother, the Spectrum 128. But Sindair made too many mistakes, and lost the momentum of its product development. Commodore had similar troubles with the Plus 4, and the 128 and Amiga disappointed many expectations with their high prices. Just to add to their problems, Commodore suffered a well documented retail side slide (probably the only just stay-in business. Their latest hope is rejuvenation of the 64 with the 64c. Again, on the other hand, based away into R & D programmes to very little effect, and big financial headaches.

Underestimating the costs, Amstrad and to an increasing degree Atari, coasted in and started offering complex, powerful systems at comparatively low prices. Then the unthinkable happened when Amstrad bought out Sindair; suddenly the honey-moon was over.

The Dragon's personal problem has been the failure to maintain a software base. Early on, the Dragon was slow to get into the sophisticated games areas and exacerbated the cycle of success/failure to which home computers are subject. To a degree, the success of hardware is determined by the amount and quality of software available. Equally many software producers wish to satisfy themselves as to the marketability of hardware before committing a software effort to it.

The demise of Dragon Data provided an immediate downturn in support for the machine. The reaction from many software houses was predictable; at that time, with many more models on the market, any hint of financial trouble was enough to frighten away software producers. The famous crash of Imagine Software proved that no-one was immune.

While sales support for Dragon software was withdrawn by a well-known High Street outlet, the game seemed to be over. But a few houses continued to feed the Dragon. Some were so heavily involved that pulling out could have led to collapse. On the other hand, the Dragon in its heyday enjoyed good sales figures, so there are a fair number lurking out there. If the sales base held, there was an opportunity for guaranteed, if not spectacular, sales. After all, where else could Dragon owners turn?

So, while the Dragon owner is still deluged with new software, there are enough quality releases to keep users involved. The main sign is that the number of conversions of classic games or utilities on other machines seems to have dried up.

Where does this leave the average Dragon user? Until recently the position was more positive than anyone would have suggested a couple of years back. Good quality software came in just about sufficient quantities; peripherals were produced and Dragon User was still in the shops.

However, the situation is not stable; the pessimist fears it is that of the Domino Theory coming in to play; if one pulls out, then a whole succession of market withdrawals may follow. This instability causes uncertainty for the owner; how many have succumbed to the temptation to ditch their Dragon in favour of a better supported machine?

The uncertainty can be seen in the advertising efforts of software houses. Fewer are advertising, and those that do are selling old stock, or don't advertise at all.

The subscription-only policy of Dragon User cannot help but affect the morale of Dragon users. To have their main magazine removed from the public eye signifies another retreat. If the supply of users were to be cut, then Dragon users would be in real trouble.

As computing matures, it is complicated by the Dragon lies on as an anachronism, responsive and versatile, but outdated. But considering how greatly computing has changed since its launch, consider what may happen in the next span of time, and how many other famous names, past and future, will face (or be in the same position).

The Dragon seems doomed to follow its gentle downward path. It is frustrating to think that much of the future of the machine will lie outside the influence of individuals. Users will maintain a network through clubs and bulletin boards, but for how long? What can do it to support our chosen manufacturers and hope they continue to support our chosen machine. Already the Dragon has stayed afloat longer than many people predicted. That the Dragon has lasted so long is a tribute in itself.

The home computer market will see another leap forward, probably from Amstrad. The Dragon will get left further and further behind. But who knows, the whole bubble might burst! As long as the Dragon can hold its present position, there will be incentive for some software producers. Maybe Dragon owners should shoot a bit louder to get noticed.

The clouds never seem to be far from the Dragon's horizon, but then Dragon owners are used to adversity. They're also used to sticking together, and that might be the saving grace.



# OS-9 Blues

David Rothey demonstrates how to get the most out of OS-9 Stylograph.

NOW that OS-9 has been adopted as the basis of the European Education Standard microcomputer system, and by Sony/Philips for the Laserdisc system, its future seems assured. In addition, Tandy's Colour Computer 3 runs OS-9 level 3, and H.C. Andersen of Denmark, whose staff distributes OS-9 software especially for the Dragon, all of which means there should be plenty of software around. If you have taken the plunge, and bought the operating system, or if you are to do so in the future, the following notes should be of help. Some of the information has appeared before, and I rely partly on information gleaned from others, but it will be useful to have it all in one place.

The very fact that OS-9 is such a versatile system means that it can be confusing to the newswriter, and what might seem obvious to the manual writer is not so clear to the user. However, once mastered it offers possibilities and standards of software far beyond what you would expect in a home computer. I will concentrate mainly on the word processor, Stylograph, since this is the lynchpin of the system, and will be the program used by most serious users. However, to judge by letters in Dragon Mail and elsewhere, it seems to cause most problems. Some of the advice given here applies also to other programs.

Despite the problems, Stylograph is an incredibly useful and reliable word processor, and one of the strengths of OS-9 is that, once installed, Stylo can produce not only documents and mail slots (with spelling checked by a 4096B word dictionary) but is equally at home writing the source code for programs in C, Pascal, assembly language or even Basic.

## Execution and data directories

One of the most useful features of OS-9 is the most confusing to the beginner, is the existence of these two "home" directories (Linux only has one). Following you set these up correctly before accessing your disc it is not necessary to give a full pathname when giving commands. The first directory is automatically set to the C:MSD directory of the system disc when you initially **BOOT** up, but when this is changed for the Stylo disc you must use

the **MSD** code

before Stylo can be accessed. If you have only one disc drive then

```
chd 00
```

will store your letter files on the same disc, otherwise place a blank formatted disc in drive 1 and use

```
chd 01.
```

Note that the first command in OS-9 refers to the execution directory, and the second scrolls into data directory. Thus if the first is what you do, the second is the file you do it to, for example

```
'Del file'
```

```
lnsdel:del:del:command in c00:MSD and deletes file in 01.
```

Note that a command cannot be executed unless that command is in the execution directory. It is no use trying to find what is on a disc by typing **DIR 00'** unless DIR is one of the files on disc 00! That is why the Stylo disc duplicates a few utilities from the system disc — if these are removed or Stylo copied to another disc and you have only one drive then the only ways find what is on the disc is to **LOAD DIR** from your system disc into memory first. If you forget this then you will get a 'no access permission' error message, which probably leads you wrongly to suspect the file attributes need changing — very unhelpful! Note also that Stylo will not load unless it is in the current execution directory (MSD normally will not work) and some features of Stylo will not work unless its disc is in drive 0 and **RENAME** and **DELETE** are on the same disc in the MSD directory. Remember that unlike Microsoft basic on the normal Dragon all commands must be either on disc or loaded into memory by you.

## Header file

I always have a "Header" file on my data disc prepared by Stylo which contains my address and telephone number together with the codes for setting up my printer. Suppose the code to get the printer into correspondence character set is **C7.18** then simply include:

```
"/p/
/C7.18"
and all will be well.
```

Another tip — include:

```
"/mem:"
```

and place **:DATE:** in the correct position on your header. Now when you call Stylo use the command:

```
STYLO 1 file:Header:Letter
```

This will load your header along with Stylo, and after you have written the rest of your letter will automatically save it with the filename of 'letter'. The **DATE** will reserve as much space as possible for your text, if instead of printing the letter direct from Stylo you return to OS-9 and use:

```
MM letter.jp
```

the correct date will automatically be inserted in the letter wherever you decide to print it.

## The dreaded Linefeed Syndrome

The \$64000 question which is always being asked is "How do I stop Stylo doing double linefeeds with my printer?" At the end of each line of text it sends two codes, **:BOD** which is carriage return and **:BCA** which is a linefeed. Unfortunately most dot matrix and modern daisywheel printers give an automatic linefeed whenever they see sent the code for a carriage return (**:BOD**). Hence the double linefeed! Many users have been suggested — speed the text through another print it, use the **Break** command, use the proportional spacing table — none of which work. Special assembly language filters have been written to remove the linefeed code but these are fiddly to use. How it can be removed? The solution is to change one byte of Stylo itself. Since I am going to suggest quite a few changes during this article I will explain the method of doing this at the end. All the changes are shown together in table one. The linefeed code is replaced by **:OO** since this message differs from the same problems as Stylo, corresponding changes are shown for this. This cure is complete and does not affect the program in any other way.

## Special printer characters

Another one or two characters frequently heard is "How do I use special characters such as the **C** sign since my printer needs those to be accessed as codes above 1087?" Another of Stylo's winning ways is to make bit 7 of all codes sent to the printer. This is to avoid graphics characters being printed by mistake, and subtracts **:07** from all codes above this value. However it can be a bit of a pain (particularly a lot of a pain!) and the masking can be removed by replacing **:07** by **:0F** in two places in each program.

## Special printer features

Stylo has special control codes to allow underlines etc. to be used. These are intended for business type daisywheels and work by backspacing and double printing, if you have a dot matrix printer you may still be lucky. Using the Stylo command to specify a P20 type printer, my Tandy DMF 17 works perfectly on underline, subscripts and superscripts when in "word processing mode". This is because **:0F** is sent before each letter in underline mode, and **:BCB**

after the last one. Those coincide with the Tandy codes for "text underline" and "text underline". The redundant BCPs are ignored. **Table two** shows the codes used for each feature. These may well either be correct for your printer or the incorrect ones may be ignored. It is doubtful if in *OnLine* and *Sold* are most unlikely to work on DM printers. If you have no success there is another alternative. If you send me your printer codes for underlines, subscript, superscript and bold, I will send you a tailor-made assembly language filter to solve the problem — see later.

## Proportional spacing

The command in the margin, **PS** is included to allow proportional spacing on *OnLine/Printers* saving this facility. The correct STYPS file must be on your disc. Note that if your DM printer has proportional spacing the STYPS tables are not necessary, and you should simply send the correct printer control codes in the usual way. **Style** will not right justify proportional spaced text even on a *OnLine*, so this is not point in following about.

## 80 column screen

If you are lucky enough to have DragonPlus, or an 80 column terminal, the appropriate changes adapt the program to screen in **Table one**.

## Customising your keyboard

I, for one, prefer using arrow keys to move my cursor instead of the L, J, K, M keys etc. as used by **Style**. **Table three** shows all the modifications which can be made. The suggested changes should be carefully considered, before changing to something else make sure that key has not already been used, and remember that the arrow key codes are duplicated by other key combinations, the up arrow is the same as Control L, down arrow as control J, left arrow as control H, right arrow as control I, BREAK as control B, etc.

Check the rest with your User's Guide. If you do make changes to the control keys then you should make appropriate adjustments to the STYPLP files which are called when you press control L. To do this, simply load them into **Style** and edit them like a normal text file.

## Problems with the spelling checker

This is a most useful utility since, even if you are a good speller, you can type quickly knowing that "tying mistakes" can be spotted quickly and easily afterwards. The only problem seems to be that there is a supplementary dictionary to which you can automatically add specialised words such as legal terms if you happen to be a lawyer. However, you made up the disc for Dragon Data, in their wisdom applied a blank supplementary dictionary file. This causes SPELL to crash when it accesses the empty

file. The cure is simple: just delete the supplementary dictionary, and SPELL will make its own when required. If you share my dislike of Americanised spellings you will occasionally be irritated when SPELL rejects words like "yrs" in favour of "fir", and of course SPELL cannot correct grammatical errors in that regular mistake of Dragon User contributions of forgetting that the only meaning of "r's" is an abbreviation of "to 'r/his a brave man, his Mackey" — (S)!

Finally as regards **STYLE**, I use it so much I have given it its own bootable disc, using the **CONSOLE** command. I have included on this new **STARTUP** file what includes the following lines:

```
chd:let
```

```
Display — 1p (where — contains the codes to set up my printer correctly)
```

```
Style: F1& Header Letter /Start )
```

This makes **STYLE** load and write to drive one, although it does not permanently change the *dos* directory, it then sets up the printer (make sure it is on) and loads **STYLE** correctly. Don't forget the *Start* command or your keyboard will go dead!

## Record management

This system may seem a bit clumsy to set up, but is very convenient in use. However, there are errors in the manual. On page 28 the method of specifying a report file from the keyboard using **X** (Prompt: is wrong. You should use **ENTER** key/field: where key/field is the **RMS** disc key/field. A prompt does NOT appear on the screen. Also the sort algorithm on page 43 is wrong. Eight lines from the bottom should read "H = H + C - S2". Note that multiple sorts do exist that one key/field is not possible directly from **RMS**, but can be done by loading the file into **DYNACALC** and using its sorting facilities.

## General notes

I have included in **Table one** some 80-column changes etc. for other OS programs. Note that a few programs create a "scratch" file in the current *dos* directory while working, which is deleted if the program is properly exited. Thus, if the *COM* compiler or **File** give a "file already exists" error when they start work a may be that the scratch file was not deleted last time you used it. Also the *COM* compiler requires the **EDM** utility to be in the **CMDS** directory or you will get errors thrown up all over the place.

Don't forget when using **BACK99** that although there is no **CLS** command, there is a useful set of codes given in supplement C of the operating system user guide, page C2. These enable you to clear the screen and give a considerable amount of control to the cursor. Even more extensive controls are available in the **BI** character mode, allowing underlining on screen, reverse field etc. These are shown on page 63 but are often forgotten. To use them just include **DISPLAY** when in **OS-8** mode followed by the appropriate code. The lack of an

**PKKEY** command can be remedied by assembling the **PKKEY** assembly file at the end of the **BACK99** manual. I have an assembled version for anyone who is stuck.

If you wish to use the **OSMP** command to examine a whole disc, rather than a file then **OSMP** will not work. However, whole discs are designated as **g10** or **g100**, so the command **OSMP g:01** will do the job. If a disc of files has been altered so much that the disc space has been fragmented you can regain a lot of memory by using the **OSAVE** command to copy them neatly on to a new disc. It is not necessary to create a test file as in the manual. Simply use **LOAD OSAVE COPY MAXPR 1M000**. Now replace your system disc in **OSW** the disc to be copied, and put a new formatted disc in drive 1. Use **OSAVE 525 100 /01 1 \$4ALL**. The **\$40** command speeds up the process by reserving more memory, and the **1** pipes the output of **OSAVE** directly to the system, just as if a series of commands had come from the keyboard to copy each file. Also do not forget that if you ever need to copy a command in **OS-8**, such as when copying several discs with **OSAVE**, you do not need to type it in again. Simply press control A.

## To change a byte

I will give as an example the first change in **Table one**. Use the **DEBU** command of the **EDITOR/Assembler** package.  
1) **DEBU** **g:2** (Load debug)  
2) **LOAD** **OSSTYLO** (Loads **Style**)  
3) **STYLO** **Link** **style** to debug  
Debug will now print out something like this:

```
4000:07
```

This means the first byte of **Style** is in memory at position **4000**, and the value of this byte is **07**.

- 4) **7F02** (Set "val" to current memory address, to **4000 + 7F02**. The current value of this address, **0A**, will be displayed)
- 5) **= 00** (Changes **0A** to **00**)
- 6) Make any further changes to the same way **7-D** (out debug)
- 8) **SAVE** **STYLO** **OSSTYLO** and

Unfortunately you have not finished, as the **CRG** check will now be wrong since you have changed with the program. So:

- 9) **VERIFY** **g:2** **OSSTYLO** mod **OSSTYLO** (This updates the **CRG** on the new **STYLO** file)
- 10) **ATR** **g:2** **OSSTYLO** **g:2** (This sets the relative attributes which are for some reason deleted by **VERIFY**)

You can now copy your new **STYLO** into the **CMDS** directory of your **Style/guide** disc.

If you do not possess an assembler, or all this sounds too complicated, I am willing to modify any program for you. If you wish to take advantage of this, or any other service (as mentioned in this article), then at least:

- That if you wish me to modify a copyright program you endorse the original after making a backup, of course.
- That you make your wishes clear.

That you either enclose a blank disc and return postage or include £2 to cover this.  
 \*That you enclose 12 nominal fee to cover at least some of the time involved, to OWE

Rothery, 1 Heath Rd., Clonop, Derbyshire S015 999 I would strongly recommend anyone using OS-9 to join the OS-9 User Group, which distributes a disc full of ideas,

letters and programs each month. The address is: Martin Verneis, 8 Reservoir Court, Llandudno, Gwynedd LL30 1TF, OS-9 RULES! O.K.

Table 1 - Linefeed and screen width modifications

Offset	Normal value	Change to	Comments
<b>STYLE.DSKAINT</b>			
0F52	0A	00	Eliminates linefeed
4FAG	7F	FF	Allows control codes above 127
5060	7F	FF	Needed as well as above change
14C3	31	4E	Gives 68 column width
<b>MAIL.MERGE</b>			
1920	0A	00	Eliminates linefeed
1C02	7F	FF	Allows print characters over 127
1E94	7F	FF	Needed as well as above

**DYNACALC**

The changes shown must be made to DYNACALC.TRM not Dynacalc itself. Since DYNACALC.TRM cannot be loaded as a memory module a disc zap program will be needed. Do not verify after changing it.

0000 18 10 Screen depth  
 000E 32 50 Screen width

**Rel**

Read file REL.TRM into Style.

Alter the first two numbers to the new screen depth and width respectively, e.g. 18 followed by 50 for a 24x60 screen (remember numbers are hex)  
 Save new file as REL.TRM after deleting old version.

Table 2 - Hex codes sent by Style to P20 printer

Underline mode: 0F before each character, 0E at end.  
Overline mode: 0E before each character, 0E at end  
Superscript: 1B,1E,0E before text, 1B,1C,1B,1E,0E in between each, 1B,1C,0E at end.  
Subscript: 1B,1C,0E before text, 1B,1E,1B,1C,0E in between each, and also at end.  
Boldface: 0E before each character.  
Proportional space gap: 1B,11,0E before text, 1B,12,0E at end of prop. spaced text.

Table 3 - Style control key modifications

Offset	Normal value	Suggested value	Function
<b>* Escrow mode shortcuts</b>			
0443	'J'	49	UP ARROW 00
0444	'L'	40	RIGHT ARR 09
0445	'J'	20	DOWN ARR 0A
0446	'J'	4A	LEFT ARR 08
0447	'U'	55	CNTL UP ARR 13
0448	'M'	4D	CNTL DN ARR 12
0449	'F'	4E	Leave as before
044A	'R'	52	Leave
044B	'I'	3B	Leave
044C	'W'	57	Leave
044D	'Z'	5A	Leave
044E	'S'	53	Leave
044F	'P'	3F	Leave
0450	'D'	44	Leave
0451	'O'	4F	SHFT UP ARR 10
0452	'I'	2E	SHFT DN ARR 1A
0453	'K'	4B	Leave
0454	'P'	58	Leave
0455	'Y'	7D	Leave
0456	CONTROL D	04	CNTL C 03
0457	'		?
0458	'Y'	37	CNT LFT ARR 18
0459	'9'	39	CNT RT ARR 11
045A	'I'	31	Leave
045B	'I'	49	'I'
<b>* Insert mode controls</b>			
046C	CONTROL U	15	CNTL 5 10
046D	CONT O	0F	Leave
046E	CONT B	02	Leave
046F	CONT I	09	CNTL + 08
0470	CONT K	08	Leave
0471	CONT Z	1A	CNTL U 15
0472	SPACE	20	Leave
0473	LEFT ARROW	08	Leave
0474	SHFT L ARR	18	CNTL D 04
0475	CONT D	04	CNTL C 03
0476	CONT W	17	Leave
0477	CONT F	0E	Leave
0478	CONT N	0E	Leave
0479	CONT Y	16	CNTL B 0D
047A	CONT P	18	CNTL V 1E
047B	CONT G	07	Leave
047C	CONT R	12	SHFT RT ARR 19
047D	CONT Y	19	SHFT LFT AR 18
047E	CONT 0	1F	Leave
047F	CONT A	01	Leave
0480	CONT BREAK	10	Leave
0481	CONT T	14	Leave

## In the firing line

**Program:** *Private  
Soldier: Quickbeam*  
**Price:** £29.95

**DAY ONE:** I can hardly believe it, that just five days ago I was making my living as a humble accountant in Baker Street, and now I find myself in a war zone, against several hundred thousand troops, planning to steal a plane and fly it out. They've explained it all to me. Colonel "Ball Breaker" Hitchens has told me it's easy. "Stage one is the approach, stage two is the final approach, and stage three is simply flying the plane out." Well, I can't help but worry, something seems to be wrong.

**DAY TWO:** something seems to be very wrong. My gun appears to have three blanks in every four bullets. I mean, I keep shooting at the men, but even when I hit them, they don't die. Colonel Hitchens told me to "Stop being such a

snobby, panty girl Orbaum, just admire the great uniforms the others are wearing." But still I feel uneasy about my chances of success.

**DAY THREE:** something is very wrong. I've just tried to put a tree on top of a stack of trees, with so many to pass it or to go sideways, and no option to turn back. Oh my god, I can see Jerry coming now, I've noticed Colonel Hitchens but he just said "Ha, ha, ha, caught another one" and dissolved into maniacal laughter. Well, it looks like I've had it. Tell Laura I love her. War is hell.

[These were the last coherent words of Private Orbaum. From the next few blood stained pages of his diary, the following words were gleaned: Great graphics, great sound, completely bug ridden, too hard, too unfair.]

Jason Orbaum

When we received it, we felt that Jason Orbaum's review was sufficiently controversial that it was only right that Quickbeam should have a chance to reply to it on the spot. Dave Hitchens of Quickbeam thought so too, and his reply follows. We will only add that to us the game looked good, sounded good and was tricky to play; how a

games player copes with a game of this type depends on his or her attitude to gaming. We won't add anything further at this stage, because it would involve an essay on games playing which is out of place here, but we would like to hear the opinions of other readers who have loved or hated the game.

- Editor

Dear Editor,

Thank you for passing on your reviewer's comments about our game *Private Soldier* to me.

I feel that the review is very inaccurate, and that, since you intend to publish it, I must insist that you print this letter alongside your review.

I will begin by bringing your attention to Mr. Orbaum's mis-statements:

a) "My gun appears to have three blanks in every four bullets".

This is not correct. Although it may appear that the bullets have hit the men, this may not be the case, as the men can move faster than the bullets, and thus avoid them. There is a knack to using this gun — as

with all weapons — which Mr. Orbaum seems not to have acquired!

b) "I've just tried to run past a tree, with so many to pass it or to go sideways, and no option to turn back."

It is possible to climb over virtually anything on the screen by moving the joystick backwards and forwards. There is a safe route through the game which has to be found by trial and error.

c) Mr. Orbaum's parting comment of "completely bug-ridden".

This is a seriously misleading statement, as anyone with a knowledge of programming will know that many hours of work

go into producing a bug-free program, which this is. Mr. Orbaum is confusing his own lack of success with bugs in the program.

I do also object to the sarcastic manner in which Mr. Orbaum has used my name in his review.

I will be more than happy to demonstrate the program again to clear up any problems.

The game was designed to be a challenge to the serious games player, not to be completed within the first ten

minutes of play. I have had other very favourable responses to the game. Mr. Chris Pinkston of the NDAU agrees that the game is hard but states "I think that *Private Soldier* is an excellent piece of programming and a good game." Surely this must say something.

Quickbeam Software always welcomes constructive criticism, for it is by this criticism that we improve our future products.

David Hitchens  
Quickbeam Software

## Depêche modem

**Program:** *Modcom*  
**Supplier:** H. G. Andersen Computer A/S, Englandsvej 260, DK-2770 Mastrup.  
**Price:** £295.00 plus p.p.

H.C. ANDERSEN Computer A/S of Denmark have recently gained the license to distribute the Dragon implementation of Microvare's OS-9 Level 1 (see DU Jan 87).

They are supplying this with a number of other high quality software packages for the serious Dragon OS-9 user, such as *Modcom* is a communications program running under OS-9.

It is completely menu driven and allows the computer to send and receive files or act as a dumb terminal.

Options are selected from the menus using the "cursor" up/down and the enter key (via *Stylograph*).

The main menu offers the following options:

"Terminal" — selecting this enters the terminal emulation program. This allows you to log onto other computers (via a modem) and use the Dragon of the keyboard and screen. Control is returned to the program by pressing *Clear-It*.

"Receive" — This allows files to be received from another computer in one of three formats. Either ASCII text using the standard XMODEM protocol, or text using the QRR protocol, or binary using the QRR protocol.

"Base64" — This option allows disk files to be sent to another computer/modem using one of the three protocols mentioned above. A visual display of the file being

transmitted is given for text files.

The next three options allow the data capture buffer to be deleted (cleared), saved to disk, or examined if it is currently active.

The most important option is "Modify Communications Protocol". This allows just about every variable in serial data communications to be customised. Baud rates are supported from 50 to 2400, wordlength from 8 to 8 bits. The number of stop bits is alterable, as is the type of parity (if any) that is to be used.

Full or Half Duplex is supported, and the XON/XOFF characters may be changed, as may the "interrupt" character (CLEAR-It by default). The wordlength may change from the default 80 for those using Dragon Plus etc.

Finally, there is the usual option to enter the OS-9 "Shell" allowing you to execute OS-9 commands and *CLEAR-BREAK* is entered which returns you to the calling program (*Modcom*).

*Modcom* comes across as a professionally finished program which contains most (but not all) of the features found in many of the established communications software packages (it should really contain many more built-in editing options). It is not excessive for this type of program, but in terms of your requirements before parting with your cash.



Requires Dragon 04 with disk drive and OS-9 system.

If you've got a technical question write to Brian Cudge. Please do not send a SASE as Brian cannot guarantee to answer individual inquiries.

## Dragon Answers

### Menu with too many options

I have written a file management system on my Dragon with disc system. It is written in Basic and uses menus for all the options, using codes such as A-Z or \* to choose the option required.

My problem is that on some menus there are three or so options and I seem to need an F-KEYS GOTO for every option, which is obviously making the program very long and using up RAM as well as option codes. Can you suggest a way of reducing the number of F-KEYS/outkeeping the use of single key presses for the menu?

Kevin Lockman

Reply

Dear Mr Lockman

The obvious answer is to use the ON-GOTO command. If the option pressed is in A-Z then

```
ON (A-Z)GOTO 44 GOTO 100,200,300, etc
```

Assuming the first option is 'C', followed by 'D' etc, the problem is made slightly if the option codes are not sequential. For example, if you have the options 'ACE' and 'X' then a similar solution would be as follows:

```
ON A-Z=000175-176 A-Z=177 THEN 50  
50 ON (A-Z)GOTO "ACC" GOTO  
100,200,300  
51 PRINT "INVALID OPTION" GOTO  
50
```

### Virtual screen values

A PROGRAM I am writing at the moment using Dragon II requires several 'virtual' screens to be used at once, but it's not sure how to move the text across screens as in memory. Could you tell me where the start address of the current text screen is held and what values I have to change to put it at different locations?

James Taylor  
Oxford  
West Midlands

IT'S fairly easy to move the text across screens in memory, but unfortunately the ROM routines do expect it to be at \$400 in RAM. Therefore, if you do move it around



you'll have to use your own routines to print/write in Basic to clear the screen and print strings etc. Here are the pointers to set the screen to various start addresses:

```
$400 -- POKE #OFF500:POKE  
#OFF500:POKE #OFF500  
$600 -- POKE #OFF500:POKE  
#OFF500:POKE #OFF500  
$800 -- POKE #OFF500:POKE  
#OFF500:POKE #OFF500  
$A00 -- POKE #OFF500:POKE  
#OFF500:POKE #OFF500
```

### Building a MIDI interface

I've got a Dragon II computer and a music synthesizer which is MIDI-compatible (Musical Instrument Digital Interface). I would like you to tell me if you know about a MIDI interface for the Dragon computer.

Alan Santos Ltd  
Low Cost  
Salem

If you've not heard of anyone who produces a MIDI interface for the Dragon computer, but it should not be too difficult to build your own, which could plug into the cartridge port. Basically you need to have it as the MCS845 serial communications (PCM) chip which the MIDI standard uses. The only difference between MIDI and other serial ports is that 0V signals are not needed in it. This is because the direct output from the chip is 0V.

I suggest you look in your local library or computer book club for a suitable book of which there are many on building a MIDI interface.

### Memotech data transfer

I AM lucky enough to own two computers, a Dragon II with dual disc drive and a Memotech 540 with disc system. I have a long scroll file which would like to transfer to the Dragon from the Memotech. Could you tell me if it is possible to read the data from the 540 disc with the Dragon disc drive?

Clive Ward  
Harrow  
Middlesex

THE Memotech disc controller is similar to the Dragon's. The simple solution is to save your text file to a newly formatted blank disc on the DTG (provided for the only file on the disc). Then run the following program on the Dragon with the DTG disc in drive 1 and a Memotech disc in drive 2:

```
10 CLUMP 2000  
20 S=03-0  
30 BRAS 1,3,4,5,6  
40 GOTO 80  
50 S=S+1:IF S=9 THEN S=05-1  
60 GOTO 30  
80 IF (INSTRALCHR$(S)) THEN 130  
90 PRINT "CONTENT" AS  
100 IF INSTR$(CHR$(S)) THEN  
105 S=S+GOTO 130
```



```
110 PRINT "CONTENT" AS  
120 RETURN  
130 PRINT "CONTENT" LEFT 1  
140 PRINT CHR$(2054) AS  
150 CLOSE  
160 END
```

The text will now be in the file CONTENT on drive 2. It may not seem like a big deal to the difference in the DTG and Dragon use of end of line characters, but I leave that up to you.

### Language problems

I AM currently trying to convert an adventure program written in the C language to run on my Dragon II. However, I have come across a problem: the C program uses a variable pointer variable to access a character string, but I don't think this is possible in Basic. The C statement is as follows:

```
for:  
(p=location)(location)(p++)
```

```
if (C == 'X')  
map = p; break;  
else  
p++;
```

Paul Hammond  
Pembrough  
Aired

DAGON Basic doesn't support 'pointer' variables as such, but it is possible to directly convert the data by using string variables with the MAPS function. This point is of general interest as it may be more efficient than using the string function (MID\$) etc in some circumstances.

This program segment can be converted as follows:

```
1000 -- PEEK MAPS (C) + 0 * 256  
-- PEEK MAPS (C) - 0  
110 FOR P = 0 TO 255  
120 IF PEEK (P) = ASC (C) THEN  
MAP = P: GOTO 130  
130 PEEK (P) * 256 + 1 AND 255  
140 NEXT P  
150 REM REST OF PROGRAM
```

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# FLEXible printing

Malcolm Cowan takes the hard work out of FLEX printer commands.

USERS of FLEX, especially those using a word processor under FLEX, will know the nuisance of having to put in extra lines of control characters at the start of each document to be printed, so as to tell the printer to go to the right mode. Sometimes you can get away with it by setting the dip switches inside the printer — but all too often the print mode you want is not one which can be selected by altering the dip switches.

The EPS utility is a simply and easily modified program you can use to set up any Epson printer (or any other printer for that matter if you redefined the printer command section) in to whatever combination of modes you desire.

EPS is written in Assembler, but you don't need to know any IBM Assembler to copy it in, compile it, and use it. If you want to play around and redefine the printer options given, then that's easy enough as well, the listing is annotated well enough for most changes to be made without any reference to the Assembler section of the FLEX manual.

The section starting "TEXT" specifies the startup message, the next section starting with the "GO" line gives the reset commands

which are always stored, followed by the different lines of print commands, one for each option. Finally the section starting "LIST" connects up the printer command lines with the option letters.

## Setting up the program

To set the source up —

1. Copy the Assembler definitions into ASMBDEF.TXT.

Copy the program listing into EPS.TXT (if you already have an ASMBDEF.TXT file then make sure it includes the lines listed.)  
2. Compile the program ASMB EPS.

This will put the compiled source into a file called EPS.BIN, and (hopefully) you'll be listing of the compiled program out to the screen with the magic message "D BUNCH" at the end.

3. Copy the file EPS.BIN to your System Disk as EPSCMD.exe. That will be recognised by the Operating System.

## Using the Program EPS

To use the program type in:  
P EPS

The "P" is to force output to the printer. EPS will then display the list of options, that:  
"Type: Condensed, Double-strike, Emphasized, Hash, Italic"

"Eleven inch, No page skip, Pica, Single sheet, 3 lines/in"

Select one or more options, eg "NO" would give No Page Skip, 3 lines/inch, and Italic mode printing, then press Enter. The printer will reset the print head, and you are ready to go.

As defined here the program runs in the Utility Command area, and so can be used from the EPS word processor by Compuwrite, for those of you with that product (otherwise if you're reading this issue, thank you for the new version of EPS, it is a great improvement).

If anyone's feeling enthusiastic it should be possible to combine the "P" Command with the EPS command with a little bit of disassembling and hacking. I have not to try this for two reasons — first it would make it dependent on a particular implementation on FLEX, and secondly I'm not too idle. Still if anyone out there is willing to give it a try there's a challenge for you.

## Listing of FLEX utility EPS

- Program to set up an Epson printer; Malcolm Cowan 09/10/86
- Copyright Cowan Software Ltd 1986
- This program may be used free of charge by private
- individuals for domestic purposes, and may be included
- in libraries of Public Domain Software for that purpose

```
LIB ASMBDEF
ORG 0C100
LBR4 START
IN FC8 1

* specifies the message to be displayed, terminated by 004
TEXT FCC "Type: Condensed, Double-strike, Emphasized, Hash, Italic"
FBB 40004 Newline
FCC " eEleven inch, No page skip, Pica, Single sheet, 3 lines/in"
FBB 804

* specifies the printer commands to reset the printer to a standard start state
SR FC8 27,'8,27,'M,27,'M,12,0FF Reset, Elite, Skip over Paff

* now specify the printer commands to set the various printer options
* for details see your Epson manual; each line is terminated by 0FF
SR FC8 27,'3,72,0FF Set 3 Lines/inch
SR FC8 27,'0,15,0FF Set Condensed
SR FC8 27,'0,0FF Set Double Strike
SR FC8 27,'0,0FF Set Emphasized
SR FC8 27,'M,0,0,0FF Set Hash
SR FC8 27,'4,0FF Set Italic
SR FC8 27,'C,0,11,0FF Set Eleven inch Paper
SR FC8 27,'0,0FF Set No Skip over end of Page
SR FC8 27,'P,0FF Set Pica
SR FC8 27,'8,0FF Set Single Sheet
```



- \* This list links the lines of commands above to the input message
- \* The lines come in pairs the label, then the input option letter
- \* option letters may be numeric or alphabetic (upper case)
- \* The list is terminated by zeros

```

LIST  FCB 00          List of Options and pointers
      FCB '3
      FCB 00
      FCB 'C
      FCB 00
      FCB 'D
      FCB 00
      FCB 'E
      FCB 00
      FCB 'H
      FCB 'M
      FCB 01
      FCB 'I
      FCB 01
      FCB 'L
      FCB 'N
      FCB 'N
      FCB 'N
      FCB 'P
      FCB 'P
      FCB 00
      FCB '0
      FCB 0,0,0

```

#### Assembler definitions for EPS utility

```

*
* Standard system definitions
* Bulzola Comex 04/00/80
*
* 000 Equates
SMOUT EQU 4CC32      Output Switch
WARMS EQU 4CD05      File reentry point
DUTCH EQU 4CDBF      Low level output a char
INBUFF EQU 4CD10      Input into line buffer
PSTRMB EQU 4CDBE      Print string
PCRLP EQU 4CD24      Print cr and lf
NATCH EQU 4CD27      Get next Buffer Character

```

```

START LDA C1
      STA SMOUT      Set o/p through screen
      LDX CTEXT
      JSR PSTRMB     Print options list
      JSR PCRLP     n/l
      JSR INBUFF    Get input line
      CLR SMOUT     Reset normal o/p
      LDX 000       Start with a reset

LOOP  LDA ,X+       Get next ch to o/p to printer
      CMPA #0FF
      BEQ ENDL     Jif end of output string
      JSR DUTCH
      BRA LOOP

ENDL  JSR NATCH     Get next ch from the buffer
      BEQ EN0
      CMPA #'I
      BEU UPPER    Jif already upper case

      SUBA #40D0    Force upper case

UPPER LDA C1LIST
OPTION TSP 3,Y
      BEQ EN0      Jif end of option list
      LDX ,Y++
      CMPA ,Y+
      BEQ LOOP     Jif option recognised
      BRA OPTION

EN0   CMPA #400
      BEB WARMS    Jif end of input line
      BRA EN0L

      JSR PCRLP     Clear printer buffer with a n/l
      BRG START

```

# Disc controller

D. Marriott brings Cumana under control with this menu utility

I HAVE been trying to invent a utility not covered in magazines. After a bit of thought I came up with Disc Controller to help me and any other user to Cumana system. The user ranges from 'killing and logging' to 'sector read' and 'sector write'. The latter two are not important and can be omitted when typing it desired. This program is held on a disc which is only needed to load the program at the beginning. Please note the case in line 10, which can stop programs loading with the lack of memory.

The program options are:

- 1-Reformat
- 2-Edit
- 3-Chain
- 4-Load
- 5-Catalog
- 6-Backup
- 7-Protect
- 8-Sector r
- 9-Sector w

**REFORMAT** can create any type of disc: single-sided, double-sided, etc. and can delete all the programs on it. All the pro-

grams, if any, are first displayed on the screen so that they can be checked off, and the identity of the disc confirmed. There is an abort function, if it is wrong, which returns to the menu. It will then ask for the drive, disc sides and the number of tracks, and after a wait the menu will return.

**EDIT** will remove a program from disc providing that it is not protected. First insert the disc. All the programs on it will be displayed. An advantage is the only chance to abort if you have made an error. It will ask for the title of the program to be killed followed by **FORMAT**, which stands for **BACKUP/MACH-ONE CODE/DATA/BACKUP COPY**. It will then kill the program and return to the menu.

**CHAIN** loads and auto-runs a program. It will first catalogue the inserted disc and then ask for the title of the required program. Then it asks for the file type that is **FORMAT/BACKUP/MACH-ONE CODE/DATA**. If the wrong disc is inserted or an error has been made then do not type **RM** or **D**.

**LOAD** does the same as chain except it does not auto-run. If an error is made then do not type **RM** or **D** but another key and

you will enter catalogue.

**CATALOG** asks for a disc and then it prints out all the programs on it.

**BACKUP** will either Backup a single program or a whole disc. If another key besides **Line D** is input it will ask for the drives to be used. If they are the same use drive 1. You will then have to keep swapping discs if one drive is used, so ensure that a write-protect lag is on the disc to be copied from. For a single program it will ask for the file and requires an input either **MAC/ROM DATA**. This uses just one drive, so discs must be swapped quite often depending on program size.

**PROTECT** will guard any programs so that they cannot be killed except by reformatting the disc. It will show what is on the disc and then ask for the program title. It will then ask whether the program wants protection added or removed. If neither **N** or **P** is typed it will revert to the menu.

**DISK SECTOR WRITE** will ask for a track and a sector. You then type in the sections of words, characters, etc. This is the main menu on the disc. There is no return for this option. First type in the program then save it onto a disc using your own preferred filename.

```
10 CLEAR:000
20 CL@:00000000"THIS IS A WALTER CONTROL DISC"
30 PRINT:000,"DISK PRESS [OFF] [ON]"
40 PRINT:010,"set [any]"
50 PRINT:020,"1-REFORMAT"
60 PRINT:030,"2-EDIT....."
70 PRINT:040,"3-CHAIN....."
80 PRINT:050,"4-LOAD....."
90 PRINT:060,"5-CATALOG....."
100 PRINT:070,"6-BACKUP....."
110 PRINT:080,"7-PROTECT....."
120 PRINT:090,"8-SECTOR W"
130 PRINT:100,"9-SECTOR W"
140 DIS:000:000
150 IF [any] THEN 160
160 ON VAL (DIS:000000) 000:070:030:140:740:020:700:0040:1140
170 GOTO:040
180 CLEAR:000" REFORMATING COMMAND" :--"
190 PRINT:010[any] [D] :--"PRINT" INSERT DISC TO BE REFORMATED"
200 PRINT:020000 "KEY"
210 ERASE GOTO:040
220 DIS:00000000 IF [any] THEN 230
230 DIS
240 PRINT:040000 [any] [D] [any] [any] [any] TO [any]:"
250 PRINT:050 "NO PRESS 'D' ELSE PRESS ANY KEY"
260 DIS:00000000 IF [any] THEN 270 ELSE GOTO:040
270 CLEAR:000" REFORMATING COMMAND" :--"PRINT:010[any] [D] :--"
280 PRINT:020000 "ENTER THE FOLLOWING"
290 PRINT:030 [any] :--"
300 PRINT:040 [any] :--"
310 PRINT:050 [any] :--"
320 DIS
330 PRINT:060 [any] [any] [any] [any] [any] :--"
340 PRINT:070 [any] "DO NOT TOUCH UNTIL OK APPEARS"
350 DIS [any] [any] [any] [any] [any]
360 GOTO:040
370 DIS
380 PRINT:090 "KILL COMMAND" :--"PRINT:010[any] [D] :--"
390 PRINT:020000 "INSERT DISC AND PRESS A KEY"
400 ERASE GOTO:040
410 DIS:00000000 IF [any] THEN 420
420 DIS
430 PRINT:040000 "A" TO ABORT ELSE PRESS ANY KEY"
440 DIS
```



```

440 IF @=@EYES IF @=@THEM AND @=0 IF @=@THEM @0
450 INPUT TITLE TO BE KEYPED @=
460 INPUT TYPE OF PROGRAM @=@EYES @=
470 IF @=@EYES KEYPED @= @=
480 IF @=@EYES KEYPED @= @=
490 IF @=@EYES KEYPED @= @=
500 IF @=@EYES KEYPED @= @=
510 @= @= @=
520 @= @= @= @= @= @= @= @= @= @=
530 PRINT @= @= @= @= @= @= @= @= @= @=
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```

# Expert's Arcade Arena

Write to "The Expert" of Dragon User 12-13 Little Newport St, London WC2E 9PP, with all your arcade tips and hints.

HILL, LO and welcome to the Expert's public confession. No, the mystery is history. The Expert is revealed! Before the amazing games round up, here is a brief CV:

**NAME:** The Expert.

**BORN:** Obviously.

**SEX:** Regularly (he analyses a lot of by himself — Ed.)

**CHILDHOOD:** The Expert's mother, to her relief, died at birth (his, not hers). The Expert spent his childhood in prison serving a twelve year sentence for involuntary manslaughter and making useful contacts. His release was marked by fireworks, street parties, spontaneous three minute dances and British television getting SEVEN millions right in a row!

**EXPERIENCE ON COMPUTERS:** After several months' reading, The Expert designed his own computer. Following established trends (Apple, Apricot) he called his design The Herring. It had no RAM and no ROM, as it was, in fact, a box with one of those horrible Sinclair keyboard. Consequently, it was simple to use, and sold quite well for a while. The Expert went on to design the Red Herring. This had 128K RAM, 128K ROM, Fortri, C, Pascal and Basic as standard, and was even simpler to use, as he took the advice of the microcomputer and removed the keyboard. Unfortunately, this made programming rather difficult.

The Red Herring sank. The Expert

bought a Dragon 32 and decided to write games.

After some three years locked in a game with a continuous supply of games, he had yet to write a coherent program (Or anything — such — Ed.), but he knew more than anyone else in the world about Dragon games. Emerging from his game, he found that Dragon Data had gone down the drain. Attempting to simulate its progress, he tripped over a veritable television of madness who

was throwing up double Martini in a gutter in Little Newport Street. Its name was Helen Armstrong. Much has been written about their whirlwind relationship in the mass media. The real is history. (The Expert was looking for his specs at the time. The editor he tried on was Mr John Cook, who always carries a spare of broomstick to grant himself from confused and emotional software reviewers. The Expert accepted the job on the spot. — Ed.)

## Games roundup

So, on to this month's promised 'games roundup'. What I have done is picked fifty games from the back catalogue and give you an opinion. This should sort out some of the letters asking my opinion on this game and that.

If you feel this column has been useful, I will consider a lot of what games to avoid, and why.

Every game listed is one that I have enjoyed playing, and the list is intended to help those adding to their own collections. Under 'Graphics', I have considered how the game looks while PALMED — making no allowance for smoothness of movement. All ratings are from zero to five. In 'Speed', the rating goes from zero; incredibly slow to five; too damn fast! Please note: the overall rating does not corres-

pond to the usual Dragon ratings, because these games are ALL FOUR DRAGONS AT LEAST in the normal rating. They are all good; some of them are brilliant.

Under 'Type' I have assigned the following categories: **Shoot-em-up**; left-right fire games; **Collection**; walkways, ladders, from Atari Asterix to Don't Go To Bed; **Penetration**; warlike type games; **Adventure**; Tree Dwarf et al; **Strategy**; games where thought is as important as speed. **King Pinball** is odd.

The games listed are not all necessarily still available, but suppliers like John Peers and Computer City still have copies. Prices will vary. As a rough guide, the first thirteen are £15 a game, the next twenty seven are £10 each.

Name	Graphics	Speed	Type	Comment	Rating
Born On Board	4	3	Collection	If you can get hold of one of the copies which allow you to play without the hazard of power surges, this is a really great fun game.	4
Born's Kingdom	2	2	Adventure	With the map (see last issue) the game's a cinch, but try it without.	2
Caverns of Chaos	5	3	Collection	This one's too close to Memo: Inferno for comfort, but simulates acids, the game has some very devious screens, and a very nice feel to it.	3
Cyber Smash	3	5	Penetration	The ultimate test for arcade game players. If you can do this one without cheating (and yourself) among the elite few who will be remembered after their death!	5
Dragon Dent	4	n/a	Strategy	Excellent design makes this one work. It's very difficult to transfer traditional games to a computer, but this works very well thanks to the way they've done it. It's not the same as playing darts at the local, but it's almost as much fun!	3
Fingers	2	2	Collection	It's not the bestest of its type, or the best looking, but it's pretty damn hard, and at a high difficulty level it's really rather playable.	2
Dr's 4-Job	3	3	Adventure	Ignoring the fact that unemployment isn't the most tasteful subject for a game, this one will make a great set of images if anyone wants to do them!	3
Kung Fu — The Master	4	4	Kung Fu	This is THE BEST kung fu game available for the Dragon. Ignore the fact that only one person can play it at a time because this one has very good accuracy and really does provide a challenge that becomes progressively more difficult.	5
Mutant War	1	2	Adventure	This is one of the many not good versions of Star Wars available for the Dragon.	1
Olympic	2	2	n/a	This is one of the many not good versions of Back and Forth available for the Dragon.	2

Name	Graphics	Speed	Type	Comment	Rating
Ruby Robba	3	3	Strategy	This really is a good little thinking and reacting game. I wouldn't rave overly about it, but it looks good and sounds good.	3
Star Sweep	4	2	Shoot-em-up	This is a game for when your friends come round and want to play a shooting game but really aren't very good. Fine for beginners, but it doesn't get any more difficult, so it's only a warm-up.	2
Starman Jones	4	4	Penetration	Based squarely on a Spectrum game called Luster Jetman, this is not very good but it's fun on those long winter evenings.	
Speed Racer	5	3	na	This is the best driving game the Dragon will ever know, as yet. It's 3-D, with a choice of four tracks and really great for competitions with other people, as each track has its own high score.	5
Danger Ranger	3	3	Collection	This is a typical Ken Kallist game, it's almost complete.	4
Cultbert in Space	3	2	Collection	The closest to Jet-Pac the Dragon has ever seen, with the most irritating "extra bit" ever seen, as well. I mean, who wants to spend half an hour trying numbers up?	3
Cumbergood Mikaboot	2	3	Strategy	A very under-rated Amstar that admittedly suffers from lack of variation.	3
Mr. Dig	2	2	Collection	The only half-way decent version of the arcade classic available for the Dragon, and this is really only half-way decent!	
The Official Frogger	3	3	n/a	This is really very good, and for some obscure reason, seems to be more favoured among women than men!	5
Phantom Slayer	4	4	Adventure	If you like Escape then you'll love this bit of 3-D ghostbusting!	3
Cultbert in the Coast	3	3	Adventure	The only thing wrong with this game is that there aren't really not enough screens to provide sense of satisfaction when it is finished.	3
D'art	2	2	Strategy	It's a pity there aren't more versions of D'art about, but D'art is the best I've seen.	2
Buzzard's Eye	3	3	na	At its best, in two player competitions this version of Jewel is now available single-less, which means it now costs a sensible amount.	
Beam-Rite	4	4	Strategy	Highly under-rated, this is probably one of my favourite games for the Dragon. It's totally original, requires a lot of skill and should have been a best seller.	5
Taking Android Attacks	3	2	Adventure	This is another of the not very good versions of Borek for the Dragon. This one has the worst speech impediment I've ever heard.	
Abeltyr	2	3	na	This is another of the not very good versions of Pack and Field for the Dragon. This is the one that overnight increased joystick sales by 400% due to the snapping of so many while trying to play it.	2
Chambers	4	3	Adventure	This is a game based upon one that came out for that video-games machine with the vector screen whose name I can't remember (Mr. My good friend! Can it be — the Vector machine? before man hours wasted trying to enter the office/and zap the asteroids than any other so-called vector game in the history of the universe. Where are you now? — Ed.) and it's very challenging indeed, even if it does get a bit boring after a while.	3
Grabber	4	3	Collection	This is the best version of The Man seen on the Dragon. It's so simple — why is it so hard?	5
Kalegator II	4	4	Shoot-em-up	This is an excellent version of Centipede, and once you get used to playing it without a track-ball it becomes maddeningly addictive.	4
Eight Ball	4	3	Strategy	Almost like a game of pool, except you don't knock someone's disk over as you pull the cue back!	3
Skavinda	4	2	Penetration	This is a game that you really CANNOT go on playing to death. Try it, and you'll see what I mean!	3

# Winners and Losers

Every month, Gordon Lee will look at some prime programming puzzles from a previous month's competition.

OCTOBER'S competition had a taste of a mystical flavour about it, based, as it was, on the letters in the name 'Euler'. The problem was to assign digits to the letters E, L, G, A, and R such that the sum of the anagrams of the compound name—ELGAR + REGAL + LARGEL + LAGER + GLARE—produced a six-digit number in which each of the digits was a digit already in use in the generating words. Further, this value, when letters were substituted, formed a sequence in which no letter at any position was in common with either 'LARGE' or 'EULER'.

The rub of the problem was in allocating digits to the letters, and the majority of entrants used one of two techniques. These were either by testing all values in the range 12304 to 98765 for duplication of digits, or by generating each digit separately using five FOR/NEXT loops.

Listing one illustrates the general method used in the first of these methods. Note the initial values in the FOR/NEXT loop at line 20. This is the maximum value that can represent ELGAR, not 12345 nor 1234 as some entrants thought. Remember that X is the only letter that can be replaced by a zero as the other four letters all appear as the first letters of the anagrams, and 'leading' zeros are not allowed. Each value in the loop is then converted to a string variable which is then tested for duplication of any digit. This is done using the two extra loops F and G, if any match if found a flag (FL) is set to 1 to denote this. To speed up the execution of this routine the two loops are terminated immediately if a match has been found by increasing the values of F and G to their maximum limits. It is possible to terminate the loops by 'jumping out' of them, but this is not good practice. We can get away with it on the 'Euler' but in many other microcs you would not be so lucky!

As a method, however, listing one is many lines slower in execution than the alternative, as demonstrated in listings two and three. Here, each digit is generated separately, and amongst those competitors who chose this method, entry was more or less evenly divided between the two variations shown. The difference is in the 'NEXT' part of the loops. Listing two is the simpler in respect of programming as all other 'next' statements are on a single line. Unfortunately, this slows down the running time considerably as many unnecessary tests are carried out. For example, if 'E' and 'L' are similar there is no point in continuing to test all 980 permutations of the remaining three letters. With the 'next' part of the loops occurring on a single line, it is not possible to control this wasted effort (on the part of the computer). Listing 3 eliminates this problem by testing each value as it is generated, keeping the five loops completely separate.

The reason that I have included these listings is to illustrate the way in which the running time of a program often depends on the method used, (and remember that these only represent one section of the final

program required to solve the problem). The best method to be adopted can often be determined by running test listings such as these, and time spent in doing this is time well spent. It would not be necessary to run each of these listings to completion. Just stop the program after a predetermined time, test the state of the variables at that moment, and then compare the results. Note that these listings are split the 'top' and 'tail' of the program — it is still necessary to perform other checks.

The first of these would be to substitute digits for letters so as to evaluate the final sum of the alphabetic. Keith David of Crawley came up with a very ingenious method which reduced the whole operation to a single program line:

```
SUM = (1012*E) + (22081*L) + (10204*G) + (22074*A) + (1012*R)
```

Each of the digits E, L, G, A, and R is multiplied by digits which represent the number of times that the value occurs in any given position in the alphabetic. G for example is multiplied by 10204. This indicates that the G does not occur in the units position, once in the 'tens' position, three times in the 'hundreds', and so on.

Once the sums are calculated (by whatever method), it is then necessary to test each

digit to ensure that it is one of the values already assigned to the generating words.

The final stage is to compare all possible values that have survived the tests so far, with the sequences 'LARGE' and 'EULER'. I am taken to task by Alan Thomas of Staplehurst who complains that my listing on page 5 of January's *Dragon* requires this final test to be carried out 'by hand'. Point taken Mr. T., but in a program that runs for some time, I generally prefer to see some evidence of output rather than have a blank screen. Not only does this ensure that the computer is not 'stuck' in some endless loop somewhere due to a programming error, but in the case in question, the list of possible solutions can also be used to test that the program is working correctly if one or two of these values are checked against the original alphabetic.

Finally, one competitor, Denis O'Malley, used a set of five randomly generated integers instead of the expected FOR/NEXT loops. This, he reports, produced the required result after a running time of 20 minutes. While not recommending this method of approach it seems to have worked this time more, I should imagine by luck than judgement! We will be having a closer look at the use of random numbers in solving problems in next month's *Winners & Losers*.

## Listing 1

```
10 TIMER=0
20 FOR N=12304 TO 98765
30 NB=STR$(N):NB=MID$(NB,2)
40 FL=0
50 FOR F=1 TO 4:FOR G=F+1 TO 5
60 IF MID$(NB,F,1)=MID$(NB,G,1) THEN FL=1:
   F=4:G=5
70 NEXT G,F
80 NEXT N
90 PRINT TIMER
```

## Listing 2

```
10 TIMER=0
20 FOR E=1 TO 9
30 FOR L=1 TO 9
40 IF E=L THEN 140
50 FOR G=1 TO 9
60 IF E=G OR L=G
   THEN 120
70 FOR A=0 TO 9
80 IF E=A OR L=A OR
   G=A THEN 120
90 FOR R=1 TO 9
100 IF E=R OR L=R OR
   G=R OR A=R THEN 110
110 NEXT R
120 NEXT A
130 NEXT G
140 NEXT L
150 NEXT E
160 PRINT TIMER
```

## Listing 3

```
10 TIMER=0
20 FOR E=1 TO 9
30 FOR L=1 TO 9
40 FOR G=1 TO 9
50 FOR A=0 TO 9
60 FOR R=1 TO 9
70 IF E=L OR E=G OR E=A
   OR E=R OR L=G OR L=A
   OR L=R OR G=A OR G=R
   OR A=R THEN GO
80 NEXT R,A,G,L,E
90 PRINT TIMER
```

# Hooks and Ns

Extra facilities can be hooked onto Dragon BASIC. Philip G. Scott does the hanging.

DRAGON Basic has a set of 25 'hooks' (or 'Expansion Vectors'— see Dragon User February 1988, Firmware) which enable you to hang extra facilities onto the Basic-provided library of these are used by the various DOS programs (DRAGONDOS, SUPERDOS, DCCOPY, etc.) to add the disc commands. After reading this article, you should be able to add your own facilities, in the correct way, without interfering with any other programs already using the hooks.

As an example, a facility is described to give a 'RESTORE n' capability to restore to a line number, together with a 'RENUM' facility to renumber the lines in the RESTORE command, something that has been requested line and again in Dragon User without a satisfactory answer. The example has been simplified by making one assumption, that this is the only add-on which affects a 'RENUMRESTORE' combination.

Table one gives a recap of the hooks and the BASIC routines that call them. This is not identically copied to the Brian Cudge article, but is my interpretation of the stage. To use a hook correctly a number of things have to be done to ensure your extra feature works correctly and does not remove another feature already using the hooks.

Firstly, of course, you must have a routine to be called through the hooked. For most of the hooks, this routine should preserve the state of the control codes and any other registers used, in case they are assumed to be in a certain state by any other routine using the hook (or indeed the Basic routine which called the hook). This is done in the 'RENUM' facility of Figure one, but not in the RESTORE, as the state of the registers before a call to this hook is undefined.

Secondly, any routine added through a hook should exit through the hook vector which called the routine itself when initialised, if the routine has not been accessed. This ensures that any other facilities in use are not lost.

Finally, the vector to the new routine should be entered in the hook. Ideally, this is done by an initialisation routine that attempts to prevent itself being called twice, if this should happen, the hook routine will exit to itself.

The example program of Figure one is a modified version of that in DCCOPY, is fully position independent and gives a facility to restore to a line number (or the program start if no line number is given). The example is in three parts, an initial routine (SETUP), the RESTORE extension (RESTO) and the extension to 'RENUM' (RENUM).

SETUP starts by copying the vectors for the hooks to be used into the exit points of the relevant routines, then writes a jump to each routine in the hooks. Finally, the address of the 'NO ERROR' routine is written as the ERRC address, to prevent an inadvertent

second' initialisation, before returning to BASIC.

After SETUP is obeyed, RESTO takes precedence over the built in RESTORE command, by detecting the token value (RESTO) as the first character of a BASIC statement. If RESTORE is found, the default GOTO pointer (the address of the start of the program, in \$TPROG) is loaded into the X register and a test made for a line number through G@TCH@. If the presence of a line number is detected, ADDR@ is called to convert the ASCII string of digits to binary, and P@V@L@N called to fold the line, if the line is not found (the C flag goes) an 'L', 'E', 'R', 'R', 'O', 'R' message is output, otherwise the GOTO pointer is set to point at the end of the preceding line. Note that the line specified need not itself contain a GOTO statement, as the first GOTO statement occurring after the specified line will be used by the next READ.

The final part of the program covers the 'RENUM'ing of line numbers in RESTORE commands. The hook used for this is also called from three other places (Function = GET@P@U@T and CL@), so that the registers must be preserved. As only X and CC are affected, these are pushed onto the stack. The return address is then tested to see if RENUM is the calling routine and,

if not, X and CC are pulled and the original hook vector used to move on. If the calling routine is RENUM and the token value is RESTO, this is changed to RTHE@ (the token for THEN) before returning to RENUM to renumber the line number following THEN (a real 'good programming practice, but very effective in this instance).

You should now have an idea of how to use the BASIC hooks effectively to hang on extra goodies, and a useful RESTORE to line number facility. To make it easier to load the routines, Figure two is a Hex dump in 'standard' form of

address 0 data bytes = zerohook

After loading, the 180 bytes of the program should be saved by

SAVE LA, LA+100, LA

where LA is the address at which it was loaded (000 in the dump). (Remember it's position independent, so can be put anywhere.) Note that only 104 bytes are shown in the dump, as the state of the remaining bytes is set by SETUP. Figure three is a simple test program to check the facility, including RENUM if desired.

Table 1 — Hooks

Hook address	Called From	Function
0158	0028	Open drive or file
0161	0708	Check I/O device number
0164	0205	Return device parameters
0167	054A	Character output
016A	050A	Character input
016D	0425	Check device is open for input
0170	043C	Check device is open for output
0173	045C	Close all devices and files
0176	0463	Close a single device or file
0179	0408	About to deal with first character of statement
017C	0392	Disc file item scanner
017F	0378	Poll for BREAK or special keys
0182	0508	Read a line of input
0185	040B	Finish loading ACEI program
0188	040B	End of file (EOF) function
018B	0404	Evaluate an expression
018E	0344	User error trap
0191	0343	System error trap
0194	05A5	RUN statement
0197	0424	CLS@ statement
	0 0C80	String copy check
019A	044F	Fetch next statement
019D	04D7	LET string copy check
01A0	050F	Function assignment validation
	0 0E08	REM@ statement, token processing
	0 0A77	PUT@GET statement
	0 0A5F	CLS statement
01A3	0767	Compress BASIC line for storage
01A6	0F08	Expand BASIC line for listing



Figure 1 — Assembler Listing

```

0C1C
0C1C
0C1C
0C1C
0C1C
0C1C      1400
0C1C      0C1C
0C1C
0C1C      869A
0C1C      0003
0C1C      888D
0C1C      8344
0C1C      009D
0C1C      83FF
0C1C      009F
0C1C      009D
0C1C      00BF
0C1C      988E
0C1C      0018
0C1C      0019
0C1C      000E
0C1C
0C1C
0C1C
0C1C
0C1C      06 0179
0C1F      A7 8C 48
0C23      98 017A
0C25      8F 8C 45
0C28      86 01A0
0C28      A7 8C 54
0C28      9E 01A1
0C31      8F 8C 4F
0C34
0C34
0C34      33 8C 38
0C37      FF 01A1
0C3A      33 8C 11
0C3B      FF 017A
0C40      84 7E
0C42      B7 01A0
0C43      B7 0179
0C48      CE 888D
0C48      8F 9D
0C4D      39
0C4E
0C4E
0C4E
0C4E      81 90
0C50      26 1A
0C52      32 43
0C54      98 19
0C56      90 9F
0C58      27 08
0C5A      80 869A
0C5D      80 83FF
0C60      25 05
*****
* RESTORE N
*****
* Equates
*****
MEM      EQU      *
ORG      ORG      3100
FUT      EQU      MEM
AS28N    EQU      8869A
SETPOS   EQU      533
ERRFC    EQU      8888D
ERRSP    EQU      88344
ERRCAD   EQU      990
FWLEN    EQU      803FF
GETCRA   EQU      59F
ERRST0   EQU      890
KTRN     EQU      88F
NDRN     EQU      898E
SROLEN   EQU      518
STPROG   EQU      519
ULERR    EQU      50E
*****
* PROGRAM
*****
* Copy hook vectors for exit
*****
SETUP    LDA      $179
          STA     REST0,PCB
          LOU     $17A
          STU     REST1=1,PCB
          LDA     $1A0
          STA     RERRN2,PCB
          LOU     $1A1
          STU     RERRN2=1,PCB
*****
* Setup new hook vectors
*****
LEAU     RERRN,PCB
STU      $1A1
LEAU     REST0,PCB
STU      $17A
LDN      #57E
STA      $1A0
SDA      $179
LDN      #ERRFC
STU      ERRCAD
RTS
*****
* RESTORE
*****
REST0    CNPA     RERRST0      Test for RESTORE token
          BNE     REST1
          LEAS   2,S
          LDX   STPROG          Load default pointer
          JSR   GETCRA
          BQJ   RERRN          No line number
          JSR   AS28N          Get line number
          JSR   FWLEN          Find required line
          BCS   ERRL          Jump if line not found

```

```

0062 30 1F          WORD# LEAX  -1,X
0064 9F 33          STX  DATPOS      Set DATA pointer
0066 39             STX
0067 08 0E          BRNDL LDB  #LUNDR
0069 78 8344        JNF  ERROPT      Output TUL ERROR
006C             REST1 RMB  3
006F             *****
006F             * RESTORE
006F             *****
006F 34 11          RDM#  FRS#  X,CC
0071 A8 63          LDB  1,S
0073 8C 98EE        CMPE  RDM#M      From RDM#M
0075 28 08          RNE  RDM#M      Jump if not
0078 81 90          CMPE  RRESTO    RESTORE token?
007A 28 04          RNE  RDM#M      Jump if not
007C 86 8F          LDA  RSTRM      Register TRM 1
007E 35 91          PULS PC,X,CC
0080 35 11          RDM#M PULS  X,CC
0082             RDM#M RMB  3
0085             *

```

Figure 2 — Hexdump

```

3100 182 1 121 167 140 74 254 .1 = 940
3108 122 239 240 69 182 1 140 167 = 1080
3116 140 84 234 1 181 239 140 79 = 1098
3124 51 140 96 235 1 181 51 140 = 855
3132 17 235 1 132 134 136 183 1 = 839
3140 160 183 1 121 206 139 141 221 = 1174
3148 157 57 129 144 38 26 50 98 = 499
3156 158 25 137 139 38 8 189 134 = 869
3164 154 189 131 235 37 5 48 31 = 850
3172 159 51 57 198 14 128 131 68 = 804
3180 57 198 14 32 17 174 99 140 = 751
3188 158 138 38 8 129 144 38 4 = 757
3196 134 191 53 145 53 17 0 0 = 591

```

Figure 3 — Test program

```

10 INPUT "RESTORE TO (1 TO 5):" I
20 IF I<1 OR I>5 THEN PRINT "OUT OF RANGE" ; GOTO 10
30 ON I GOSUB 110,120,130,140,150
40 READ A$ ; PRINT A$
50 GOTO 10
110 RESTORE 500 ; RETURN
120 RESTORE 300 ; RETURN
130 RESTORE 200 ; RETURN
140 RESTORE 100 ; RETURN
150 RESTORE 540 ; RETURN
500 DATA "DATA LINE 1"
510 DATA "DATA LINE 2"
520 DATA "DATA LINE 3"
530 DATA "DATA LINE 4"
540 DATA "DATA LINE 5"

```

# The Answer

This is Gordon Lee's own solution to the December competition see page 38 for results

**ANSWER:** The substitution should be performed as follows:

A P H M N O R S T W  
9 4 2 7 5 8 1 0 3

Thus: SANTA = 19409 (a prime number)  
FOST = 48101 (a multiple of 7)  
NORST = 58821 (a multiple of 11)  
SNOWMAN = 193279 (1289 squared)

**Solution:** The problem is solved by using the three programs given, plus some cross-checking algorithms. First, we need to find all those square numbers which have seven digits, have the second digit the same as the seventh, and have all other digits different. This results in seven possibilities as listed in table 1. From this we can now find possible values for SANTA. We know that 'W' must be '9', and 'S' can only be 1, 2, 4, or 8, 'A' as we have already observed must be 1, 2, 7, or 9. This is included in listing one of line 40 in the program, line 60 results in all 100 in the program, line 60 to 90 test that all other digits are different. This results in seven possibilities as listed in table 1. From this we can now find possible values for SANTA. We know that 'W' must be '9', and 'S' can only be 1, 2, 4, or 8, 'A' as we have already observed must be 1, 2, 7, or 9.

Program listing two takes these known values and finds possible values for the letter 'T' which form prime numbers. A test for primes is performed in lines 100 to 150. This produces listing two. We know from our 'snowman' list that 'S' can only equal either 179, 199, 279, 479, 979, or 999, so all entries which do not begin with these digits are crossed off the list. The digit represented by the letter 'T' is also checked against the second digit in the seven-digit square as it cannot be arranged then. Further numbers can then be crossed off the list. For example, the prime 1927 has the substitutions S=1, A=7 and M=9 so must be paired with the 'snowman' substitution 19209. In the prime the 'T' is represented by digit 2, but this is already in 'snowman' where it represents an 'O', therefore this substitution is not possible.

This results in seven possible pairings of 'SNOWMAN' and 'SANTA', and from these the digits represented by the letters 'OST' can be found in each case:

SNOWMAN	SANTA	'OST'
193279	19527	275
193279	19629	329
294379	27917	421
294379	27987	429
499379	47921	542
499379	47981	548
499379	47921	342
499379	47981	348
499379	47981	348
904279	97921	292
904279	97981	498

We now need to find all two-digit multiples of 7 which end in the 'OST' digits

from the above table. This is done using listing three, line 40 eliminating all values which do not end in the required digits. Each entry is then tested to ensure that all digits are different. The results are given in table 2. The two 'new' digits are represented by the letters 'PW' and these compared with the digits in 'SNOWMAN' and 'SANTA' in

each case. Those in which the digits are duplicated can be crossed off list 3. We are left with ten possible sets of figures. In each case we have a substitution for all letters except 'N'. This is found in the word 'NORTH' which is a multiple of 11. After substitution is made, only one case out of the ten will produce the required result.

## Listing 1 - Snowman

```
10 FOR N=1111 TO 3162
20 S=N*N: S=STR$(S): S=MID$(S,2)
30 V=VAL(RIGHT$(S,1))
40 IF V=0 OR V=2 OR V=4 OR V=5 OR V=6
   OR V=8 THEN 110
50 IF MID$(S,3,1)<>MID$(S,7,1) THEN 110
60 S4=LEFT$(S,1)+RIGHT$(S,5):FL=0
70 FOR F=1 TO 5:FOR S=F+1 TO 6
80 IF MID$(S,F,1)=MID$(S,S,1) THEN FL=1
90 NEXT: NEXT
100 IF FL=0 THEN PRINT N: " ";S*N
110 NEXT
```

## Listing 2 - Santa

```
10 FOR S=1 TO 9
20 IF S=3 THEN S=4
30 IF S=5 THEN S=9
40 FOR A=1 TO 9 STEP 2
50 IF A=5 THEN A=7
60 IF A=9 THEN A=0
70 FOR T=0 TO 9
80 IF T=S OR T=A OR T=0 THEN 160
90 SANTA=S*10000+A*1000+T*10+A
100 LIMIT=SQR(SANTA)+1
110 FL=0
120 FOR F=3 TO LIMIT STEP 2
130 IF SANTA/F=INT(SANTA/F) THEN FL=1+FL*LIMIT
140 NEXT F
150 IF FL=0 THEN PRINT SANTA
160 NEXT T
170 NEXT A
180 NEXT S
```

## Listing 3 - Frost

```
10 FOR N=10003 TO 99999 STEP 7
20 S=N: S=STR$(S): S=MID$(S,3)
30 V=VAL(LEFT$(S,1))
40 IF V=215 OR V=510 OR V=421 OR V=425 OR
   V=42 OR V=48 OR V=342 OR V=245 OR V=349
   OR V=392 OR V=438 THEN 50 ELSE 90
50 FL=0:FOR F=1 TO 4:FOR S=F+1 TO 5
60 IF MID$(S,F,1)=MID$(S,S,1) THEN FL=1
70 NEXT: NEXT
80 IF FL=0 THEN PRINT N
90 NEXT
```

Table 1

1279	193279
1289	193279
1627	294379
2189	499379
2191	499379
2324	904279
2326	904279

Table 2

17927	47921
19629	47981
27917	97921
27987	97981

Table 3

27648	70382
48518	85216
50421	98049
50498	97648
51429	98042



THOSE seems to be stopping young Michael Edwards at Broomsoft, who as well as seeming to write about six million adventures a year, now seems to be involved in magazine production as well. He's sent me a copy of something just called *Dragon Magazine*, produced by Broomsoft and Dragonfire Software, which will cost £2.50 six months — or £1.50 if you also send your recent stamps into cover the postage. The reason it's so cheap is that it's obviously produced very cheaply. The issue I size was just ten photocopied pages stapled together, but the pages contained lots of useful information — and even an adventure column by someone called Punctifex, though needless to say it does not come up to the exceedingly high standard of the *Adventure Trail*. I mean, how could that even be possible?

### Rivals and upstarts

As an amateur enthusiast's effort, *Dragon Magazine* isn't bad. There are a few adventure books included, with more promised, and a review and solution or two, so you may care to fork out the readers and try it, though there's no note of what a single sample issue would cost you. You can get details from Michael Edwards at 30 Beconhill, Witley/Sussex/City, Here's ALF '89. And if you can tell him how to open the system in Pyramit of Doom at the same time, so much the better.

I seem to be surrounded by young upstarts and rivals at the moment, with Simon 'Can-I-get-in-very-often' Hargrave still sending me lots of hints and tips to pass on to readers every month, so many that I think he must spend at least 25 hours a day playing *Dragon* adventures. Here's some of the latest batch, and as usual with lengthy tips I'll be pointing them forwards rather than backwards, so look for the title of the game in each paragraph and decide whether you'd prefer to see the hints or miss them before reading on.

On *Wizard Quest* from Microdeal, there are five map levels: attic, first floor, ground floor, basement and secret passages. There also seem to be four types of keys, and to complete the quest you have to deposit seven objects in the right order: a footstone, it candle, twig, crucifix, foot, diamond and rabbit. To get the rabbit you must walk the sand over the hot.

Although it's not strictly my field, being an inside-adventurer, I'll nevertheless find a

tiny space to squeeze in one of Simon's jokes for Gurbert another Golden Oracle.

To extend the number of your lives, poke 20912 with the number you want, from 0-255. Poking it with zero, though, will tend to make the game somewhat tricky.

Next move tips on the tangled net of *Anglegwood*. To flee a chaotic, now Bearsting nest to it and type "TOUCH": To make the rock cakes, get some flour and go to the kitchen in Dogwood Cottage and COOK CAKE. To get Peabody, first get the spade and dig in the western garden then drop the bone in the Doghouse. Feed the rabbit to the rabbit (poorly handsome to figure out, that one). Tell Peabody to dig on the island. To get the spade for Foghorn, use the fishing rod. Search Mallow Marsh at night.

A problem that's apparently confusing lots of players is how to get the whisksers, and that's hardly surprising when you see the lengthy details of how to do it. Simon's solution is first to send Bruce in via the eastern entrance of Gwarf Dive to the mushroom with the red button and get Jim to press it then leave via the 5th out through the southern exit. Step two is to send Foghorn in through the southern entrance and down the 5th to the western mushroom two-thirds of the way down the left side of the screen and then up and out through the southern exit. Next step is to switch from Foghorn to any other character, type TIME, switch back again, SLEEP Foghorn, then TIME again. Then take Foghorn to Goliath, avoiding the subway where you will be mugged and lose the whisksers. Transfer the whisksers and put Foghorn in a safe place. Finally switch to Goliath and tell him to wear the whisksers. The third mushroom holds the Archangel in a vase and Goliath can then get him. Got that? Please!

Hargrave the Happy Hacker has also come up with a full list of verbs for *Anglegwood*, but some of the abbreviated ones are rather puzzling. The verb list includes (BEE) (Breath), PE (read?), SP (sping?), PFRUD (BEG) Any suggestions as to the use of those last two? Simon's offering help *Anglegwood* as far as he's got, and he lists of other adventures he's finished, too numerous to list in full, so check it out with him on his Prestal residence no. 252840261 at 1 Cowley Hill Farm, Uley, Dorsley, Oxon. OLU7 5RH. If you're ever passing through Gloucester you could probably spot Simon's home by the steam ro-

ing out of his *Dragon* and listening to the deafening sound of keyboard banging.

Craig Graham of 21 Arrowcreek Gardens, Edinburgh EH4 6RF both has help and needs help. His stick for an thing on a Tandy adventure called *Bedlam*, so can anyone help him? You adventure-starved people out there might also care to note that this is one Tandy adventure that obviously does run on a *Dragon*. Craig also needs help in *Spring*, where he keeps getting transported into spaces when he enters co-ordinates and pulls the lever, but offers co-ordinates help in *Tealboor*, the numbers needed being 7142, 1942, 5816, 8055. I know I've given these before, but my postbag tells me that newcomers are still starting adventures every month, and they may find the information useful, along with Craig's tips for the same game that you must climb the canopich to get the amulet, and to keep the plant alive you must put the ice in the tank then plant the plant in the room with the lamps.

People who are new to adventures often write in and apologise for asking questions on adventures they assume must be very easy for seasoned players, and then the questions they ask show they're getting on very well with the games, or they're asking about adventures that are pretty tough for everybody. There are no hard and fast rules with adventures. One person's trouble is another person's nightmare. I've found games like *Black Sanctum*, *Sea Quest*, *Shenangers* and *Calixis Island* very straightforward, with the likes of *D'Isidoro* and *Return of the Ring* giving me the heebie-jeebies, but then I get a letter from someone saying they finished *D'Isidoro* in an evening, but can't get anywhere on *Black Sanctum* after weeks of trying.

### Newcomers and toughies

You mustn't be put off if you find your first adventure really daunting and difficult. It may well be that you've simply started on one of the tougher games. Lots of people have heard of Scott Adams adventures, for instance, and therefore decide to begin their adventuring career of his games. I certainly wouldn't recommend those for a newcomer! I've not too been on these games anyway as the screen layout is very confusing and unattractive, and also the problems often require your brain (or vocabulary) to be turned round through ninety degrees at least. By other adver-

ture if your first one proves a toughie — and believe me, they do get easier as you go along and pick up the tricks of the adventurer's trade.

Duncan Collins offers high-road, Bloom, Biggleswade. Each offers help to anyone stuck in Calicut Island or Shenanigans, which he says he found remarkably easy and yet other adventures are obviously struggling with. Here are a few of Duncan's tips for getting on with In Calicut Island. If you can't get out of the first few locations: **GLN ERAT**. If you can't get out of the strange cellar: **YLLUPFVAC DMHTYVAFV FVMSAKE**. If you can't get up the hill: **STDOCHTMAEW**. If you want the machine: **QUR EMT SCART**.

In Shenanigans, if you don't know which mailbox to open: **ROOD EHT TA RDOL**. If muggers prove to be a problem: **ETRNK NEDPO**. If you can't find your way out of the city streets: **REGBA EBNH**. To get past the snake: **KODRMAHS EHT FORD**. And if you can't get across the river: **MAES PAS**. Duncan will answer any of your other questions on these adventures in exchange for the usual

S&E, and that obviously also applies when writing to anyone else in these pages — and that includes me! In fact my postbag seems to be dwindling a little since the magazine went subscription only. It does make life easier, but it's not half as interesting. Perhaps you might be more inclined to write if I wrote

you with another treatise — this time a solution for The Myster Factor, which I know lots of people have had problems with. And while you're writing, tell me what else you've been up to — in the world of adventures, that is. This is Dragon User, after all, not the News of the World.

## Adventure Contact

To help puzzled adventures further, we are instituting an Adventure Mailbox — simply fill in the coupon below, stating the name of the adventure, your problem and your name and address, and send it to Dragon User Adventure Help-

line, 170 Little Newport Street, London WC2H 7PP. As soon as enough entries have arrived, advertisement printing them in the magazine.

Don't worry — you'll still have Adventure that to write to as well!

**Adventure** .....

**Problem** .....

.....

**Name** .....

**Address** .....

## Adventure Contact

**Adventure:** F1, Pickover (2) **Engineered**

**Problem:** (1) I remove spacers and try to cross the bridge and it breaks. (2) Everything!

**Name:** Mark Jackson  
**Address:** Chalcote, Wilsham Hill, Lt. Waltham, Chelmsford, Essex CM3 3LJ

**Adventure:** Engineered  
**Problem:** I have found Pea-

bodybut cannot get any further in the adventure. Help!

**Name:** Mark Clopp  
**Address:** 15 Willow Drive, Main Heath, Stone-on-Trent, ST3 7LZ

**Adventure:** Basil Scopus

**Problem:** When I approach an abandoned craft, the keyboard hangs up and I'm left in space. SOS.  
**Name:** Joe Brinall

**Address:** 75 Annunciation St., Harman, Malta. (Thanks for the beer wishes, Joe.)

**Adventure:** Pickover

**Problem:** How do I open the cabinet, and the access panel, and afterward find a special set of ballroom walls and rollers?  
**Name:** Alexander Heim

**Address:** Hoptevieny 3d, 9080, OSLO-S, Norway

**Adventure:** Return of the Frog  
**Problem:** I have got the lime ring, but I cannot win it. What do I do next?

**Name:** Derek Standbrook  
**Address:** Ashfield Cottage, Horse Green, Harlow, Herts.

**Adventure:** Myster Factor

**Problem:** What is the safe combination? What do I do in the system?

**Name:** Johan Koroold  
**Address:** 2624 Redstran, Norway

## Communication

**Problem:** wanted: supplier of paper on a roll for my Gamma 100 printer (ditto quality).  
**Enquirer:** John Applegate, 17 Car Bridge Avenue, Leeds, LS16 5JZ.

**Problem:** I want a copy of the Spirit Basic Computer if anybody selling them, or does anybody know where I can get a copy?  
**Enquirer:** John Prober, 64 The Oval, Firth Park, Sheffield S5 6SF.

**Problem:** Does anyone know where I can get a copy of Dragon Data's information for Machine Code Users, also a new copy of the circuit diagrams (mine are getting a bit tatty now)?  
**Secondly:** does anyone know where I can get informa-

tion on the circuits, and software, as mentioned in Electronics Computing Monthly for connecting a Dragon to a BBC's tape, dated 1987?  
**Enquirer:** D. Lovemore, 15 Brynmead Close, Tocky, Swansea, S. Wales SA2 9EY.

**Problem:** Can anyone suggest a foolproof solution to cure HD errors on an Omega cassette recorder?  
**Enquirer:** Paul Smith, 17 Balmam Close, Ruislip, Northants NN10 5LL.

**Problem:** As I now have a high quality printer, I am in a position to offer a service. For 50p per 1000 lines I can print single or multiple copies of your Basic programs (for runs worth over 25 please enquire).  
However, I desperately need

a high quality 16-line screen dumper, like the one which appeared in February 1985's Dragon User. It must be compatible with the Panasonic KC-F1080.  
**Enquirer:** R. B. Rogers, 25 Ellington, Kings Lynn, Norfolk PE36 4TB.

**Problem:** Does anyone have any Dragon Users from 1985

which they could sell?  
**Enquirer:** Robin Hemmings, 6 Ingleby Road, Wigton, Leicester LE8 1DQ.

**Problem:** Can anyone in Belfast tell me where to get roll paper for my Brother HRS, I have tried everywhere I know.  
**Enquirer:** Desmond King, 48 Farnham St., Ormeau Road, Belfast BT7 2FN.

Write-down your problem on the coupon below (make it as brief and legible as possible) together with your name and address and send it to Communication, Dragon User, 10/13 Little Newport Street, London WC2H 7PP.

**Problem** .....

.....

**Name** .....

**Address** .....

# Never a cross word

Gordon Lee continues the vocabulary of terms and sets a number puzzle.

**THIS** month we are continuing our glossary of terms frequently used in the field of recreational mathematics.

**Divisor.** (See Factor.)

**Dodecahedron.** One of the Platonic solids having twelve regular pentagonal faces.

**Exponent.** The number indicating the power of a quantity. The exponent of 10 in  $10^7$  is 7.

**Factor.** The factorial of a number is the product of all whole numbers from that number down to 1. Factorial  $n$ , usually written as  $n!$ , is  $6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$ . Factorials are frequently used in permutational problems.

**Fermat, Pierre de.** Seventeenth century mathematician noted for many important discoveries in number theory. His "Last Theorem", which is believed to be true but which is still unproven, states that the equation  $x^n + y^n = z^n$  has no solution in whole numbers when  $n$  is greater than 2. Without equalities there are the Pythagorean relationship of the sides of right-angled triangles, eg  $3^2 + 4^2 = 5^2$ , of which an infinity of whole number solutions exist. However, for higher powers, no solutions have been found.

**Fibonacci.** The greatest European mathematician of the Middle Ages. He was the first to introduce the Arabic (Hindu) system of notation in favour of the clumsy Roman system. The "Fibonacci series" is named after him.

**Fibonacci series.** A series of numbers, each term being the sum of the preceding two terms. The simplest such series is 1, 1, 2, 3, 5, 8, 13, 21 ... Such series possess many unusual properties.

**Figure numbers.** Various numbers which have a related 'geometrical' relationship. In their simplest form they are either linear (two-dimensional), or solid (three dimensional). The simplest linear series are the 'triangular' numbers, ie numbers in the series  $1+2+3+4+5+6+...$ . These represent the number of items which can be placed on a plane surface to form a triangular arrangement. Other linear series include the square, pentagonal, and hexagonal numbers. Solid figure numbers include tetrahedral and pyramidal numbers. (See P.)

**Golden ratio.** An irrational mathematical constant which has the habit of popping up in many unusual guises. For example, it is the only positive number which becomes its own reciprocal by subtracting 1. It is often known by the Greek letter phi. Its value, to eight decimal places, is 1.61803398...

**Hexahedron.** The cube. One of the five Platonic solids, having six identical faces, each a perfect square.

**Icosahedron.** An regular solid figure having twenty identical triangular faces. One of the Platonic solids.

**Integer.** Whole number — is not a fraction or decimal.

**Irrational number.** A decimal which cannot be exactly expressed. Typical irrationals are values such as  $\pi$ , or the square root of 2. Although these values can, at least in theory, be expressed to any required degree of accuracy, the full value can never be evaluated.

**Lucas, Edward.** 16th century French number theorist. Popularised the well-known "Tower of Hanoi" puzzle, and did much work on the properties of the Fibonacci series. The 'Lucas Series' is a set of numbers formed in the same way as the Fibonacci series, but using integral values of 1 and 3. The first ten values of the Lucas series are: 1, 3, 4, 7, 11, 18, 29, 47, 76, and 123.

**Mersenne Number.** A number of the form  $(2^n - 1)$ , where  $n$  is a prime. They are of significance in the search for the highest known prime. If the number is itself prime, it is called a 'Mersenne prime'. (See below)

*Final placement next month.*

## The Competition

FOR this month's competition problem we have an easy cross number puzzle. In the grid you are required to insert a four-digit number into each of the 'across' lines (the same number repeated in each). The seven-digit number 'down' is the square of that number!

Can you find what that number is? The problem is not too difficult, so come on out if you who have always thought that the competitions were difficult! Now's your chance to win some prizes!



## Prize

WE'VE a cross word at Dragon User. We're sticking with the cross numbers. Furthermore, and you write on the pile for a copy of Microsoft's newest Dragon game, Stone Raider (by Roll Michelson). The hero is Mako (a bit like the mysterious Spanish Monk), dodging death among the ruins and gems while he gathers precious stones to get him out of the caverns before the (and his) time is up. Twenty copies await the fortunate.

## Rules

Do as the man says — find the number. When you have located it, send us a copy of the listing you used, plus any additional notes or observations you have made (no censorship this time), to us at Dragon User. Mark your envelope JANUARY COMPETITION and don't forget to include a name and address — you can't if you want to be the recipient of the prize, your mother-in-law is if you don't fancy it.

To make life just that little bit happier, you must also complete the phrase "Gems and stones may break my bones...". In any way that seems fit to you, and we will hold your precious prize up to the light and rub

them against our sleeves when deciding the lucky few. So get polishing.

## December winners

The winners of 1992 Dragon Prizes from QuikMedia Software are: Paul Woodroffe of Milton-under-Edge, G. Dennis of Twickenham, Terry Potter of Chawston, G. J. Gray of Middleborough, P. Moran of Bristol, Phil Sapiro of Liverpool, David Freeman of Pontypridd, E. A. Newman of Addlestone, S. Profford of Nork, Alan Thomas of Stapenhurst, C. D. Haines of Erim, T. Raven of Hendon, G. R. Garner of Sutton Coldfield, G. Hutchinson of Hildesborough, Simon Aubrey of Swinson, M. Cordey of Plymouth, Patsy-Harvey of Rochester, Keith David of Crawley, Fred Wilbers of Yarfield, and S. A. Siddiqui of Chesham.

Get made an uncommon number of appearances in Frank's newsletter but because most are going to Terry Potter who writes "I want to be perfectly frank because I still wear my high heeled shoes!" So that's why they can't find Sid...

## Solution

See page 37

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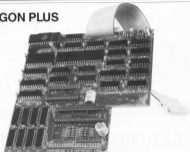
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